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GENERAL CATALOG No. 7

# THE BUCKEYE PRODUCTS CO.

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MANUFACTURERS OF  
FOUNDRY FACINGS, SUPPLIES,  
AND  
EQUIPMENT

*For Mr. Burkh  
4/15/19 H. H. M.*

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1. Foundries. - Equipment:  
Catalogues  
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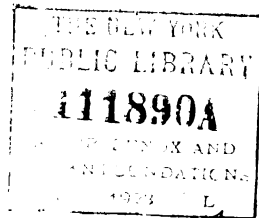
Buckeye  
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GENERAL CATALOG AND  
PRICE LIST

No. 7



# The Buckeye Products Co.

(INCORPORATED)

*Manufacturers of*  
**Foundry Facings, Supplies, Specialties,  
and Equipment**

*Importers of*  
**Graphite, Plumbago**

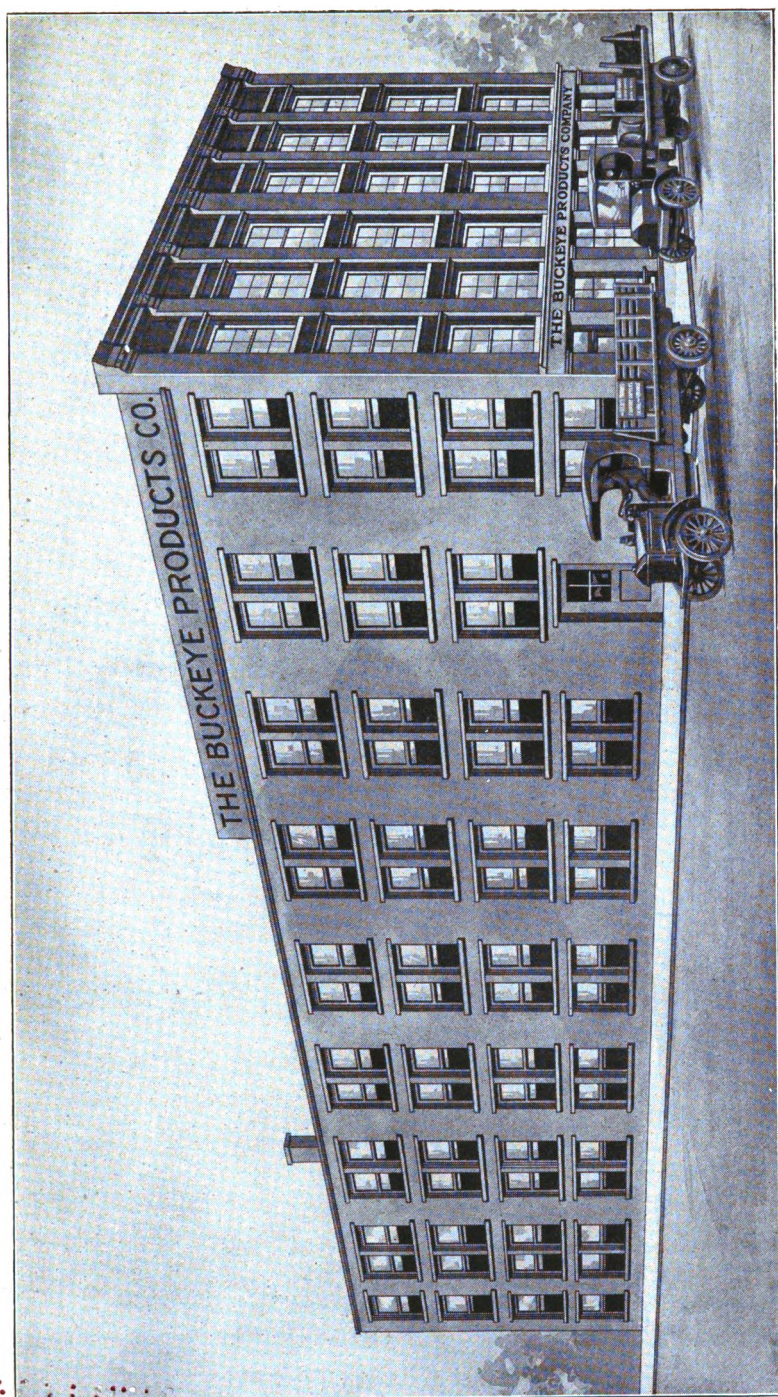
*Compounders of*  
**Parting Compounds, Core Compounds,  
Core Oils, Etc.**

*General Offices, Factory and Warehouses*  
**919-929 West Fifth Street, Opp. B. & O. R. R. Depot  
CINCINNATI, OHIO, U. S. A.**

COPYRIGHTED, 1918

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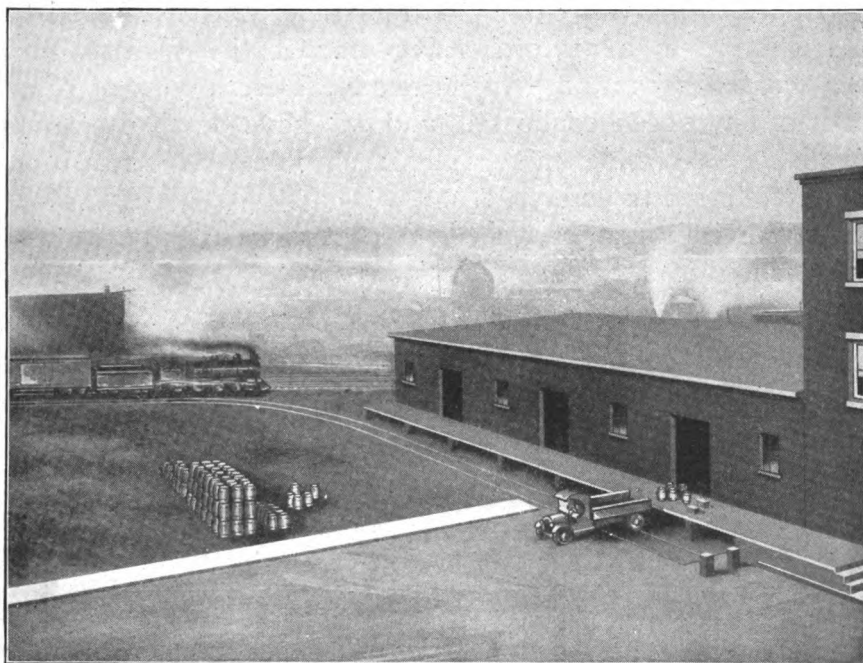


OFFICES AND WAREHOUSE





**Mill and Factory Building**



**Shipping and Receiving Warehouse**

23X335



**I**N presenting this catalog to the trade, we have aimed to describe in a comprehensive manner the *products* and *equipment* contained in its pages. Descriptions of some articles have been condensed, and we have detail literature available describing more fully such items as have been briefly referred to herein.

We invite correspondence in respect to such, and earnestly solicit inquiries for your particular needs.

THE BUCKEYE PRODUCTS CO., INC.,  
CINCINNATI, O., U. S. A.

## Greeting

**I**N July, 1908, Charles J. Goehringer and Edward S. Leisl formed a partnership for the purpose of manufacturing and introducing to the metal founders of the United States the now famous and world-known "Buckeye" parting. This material had been perfected after long experiments and severe tests by Mr. Goehringer, whose extensive experience as foundryman had ripened into a thorough and intimate knowledge of modern foundry practices and needs.

The discovery and introduction of "Buckeye" parting proved a boon of inestimable value to foundrymen everywhere. Lycopodium, the high-priced Russian vegetable product, was rapidly supplanted, and the name "Buckeye" soon became the synonym of quality and reliability all over the United States. Early in 1909, Dwight S. Marfield, an attorney and counsellor at law of Cincinnati, became associated with the growing enterprise, and "The Buckeye Products Company" was organized as a corporation under the laws of Ohio, with Charles J. Goehringer president, Edward S. Leisl vice-president, and Dwight S. Marfield secretary and treasurer. In 1912 Mr. Leisl withdrew from the Company, by reason of ill health, and within a year entered into his eternal rest. Edgar O. Stamm in later years succeeded to the position of vice-president, rising to that honor from a modest position with the Company in its early career. The other officers remained the same.

The steady growth of "The Buckeye" in favor with the foundry trade is undoubtedly due to its steadfast and consistent adherence to the policy of straightforward dealing and the insistence of manufacturing and marketing only products of the highest quality. The output of the Company has steadily expanded, until now a complete line of foundry supplies and materials goes out with the word "Buckeye" to commend it.

The early home of the Company at 2306 Eastern Avenue proved inadequate by 1913. The new home at 919-21 West Fifth Street was selected as combining exceptional advantages for manufacturing and shipping.

Nineteen thirteen was the year of the memorable flood of the Ohio River, when the stage at Cincinnati passed seventy feet. That year set marks high up in the Grand Central Depot at Cincinnati, and even turned the street in front of the new "Buckeye" home into a Grand Venetian Canal. For a month the Company could do no business, along with all the other manufacturing concerns of Cincinnati, but that high-water mark was a prophecy of what was soon to be attained in the activities of the Company itself—a new high-water mark of development in efficiency and in accomplishment. Steadily the business grew. New departments were added. The famous "Buckeye" brass-melting furnaces and kindred equipment were made available to the foundry trade, and the list of high-quality products constantly grew. All came into high favor, and the Company increased in strength and prospered.

Then came the twin destroyer of flood, the fire of 1917, which halted, but did not stop, the progress of "The Buckeye." Within three days



## THE BUCKEYE PRODUCTS COMPANY

after the destructive conflagration which consumed two upper stories of the factory building at 919-21 West Fifth Street and left the whole establishment a mass of wreckage, the officers of the Company had purchased, a few doors away, a four-story factory building, and, by day and night effort, it was thoroughly equipped with new and improved machinery—all within six weeks from the day of the fire. A host of loyal friends of the Company who steadfastly stood by it in trouble rejoiced when the stream of golden-colored Buckeye parting again appeared, and the deluge of orders for the famous Buckeye Products was released for shipment. During the summer of 1917 the destroyed building was restored, to be used as storage warehouse and for office purposes. Fire-proofing arrangements were effected, improved equipment installed in all directions, and the business of the Company instantly leaped forward with renewed impetus. Again the foundry trade learned that "Buckeye" meant quality; that it stood for loyalty to the best; that it stood for unconquerable determination; that it could not be beaten by flood or fire or any other adverse fate.

The first pages of this catalog had been written when the fire occurred. Fortunately they were among the papers which were saved. The latter pages have been prepared since. This catalog thus links the past with the present, and both to the future.

By means of it the officers of the Company extend their most cordial greetings of appreciation to all old friends, and through it they offer the beginnings of new friendship to others who do not yet know "The Buckeye," but who, with others, they feel sure will always find it, in all of its products, in all of its dealings.

Most sincerely, their loyal friends,

### THE BUCKEYE PRODUCTS COMPANY.

CHARLES J. GOEHRINGER,  
*President.*

EDGAR O. STAMM,  
*Vice-President.*

DWIGHT S. MARFIELD,  
*Secretary and Treasurer.*

TO OUR FRIENDS, PAST, PRESENT, AND FUTURE:

*This Company was founded by practical men for practical value to other practical men.*

*Its products are of the highest quality, because the best is the most useful as well as the cheapest in the short- as well as the long-run.*

*Practicability rules with The Buckeye Products Company, and is the explanation of its steady growth from the usual modest beginnings. Its growth is not yet attained, and the men who compose the Company hope it never will reach the time when development ceases.*

*Modern foundry practice is a constant development, and the aim of this Company is to be in the forefront of all the very latest and most practical improvements.*

*Its progress has been largely assisted by the valuable support and suggestions of its many friends.*

*For the past, many, many words of appreciation. As for the future, we send this greeting, hoping it may exceed all expectations, for the new friends we expect to add to the old, as well as for those who already know us as theirs,*

Most sincerely,

THE BUCKEYE PRODUCTS COMPANY.

CHARLES J. GOEHRINGER, *President.*

## Terms and Conditions Governing Sales of our Products

Our terms are net cash, thirty days, unless otherwise agreed upon. Where cash discount is allowed by agreement, invoice must be paid during discount days, and is not allowed after termination of discount period.

Where cash discount applies to goods sold at delivered price, discount will be allowed only from net amount of Invoice after freight has been deducted.

All bills not paid at maturity subject to sight draft, without notice.

Firms not having established credit ratings are respectfully requested to furnish references or forward cash with order.

Most prices given in this catalog are subject to discount. When orders are received and no discount or price has been previously quoted, goods will be shipped at lowest prevailing prices.

All prices quoted are f. o. b. factory, unless otherwise agreed upon.

All quotations made by us, or any of our authorized representatives, are for immediate acceptance only, unless by special agreement, and will not be valid or considered as binding upon us on any future orders, *and* are subject to change without notice.

It is understood that all orders are taken and contracts made subject to cancellation in case fire or other unavoidable casualty renders performance impossible.

Cancellation of orders for equipment, etc., on which we have made progress in manufacture will be permitted only on condition of the Company being fully remunerated for the outlay and expenditure incurred.

Extreme care and precaution is taken in the packing of all goods, to insure safe delivery at destination, and are so received and receipted for by carriers. Do not sign receipt for goods unless satisfied that they are in good condition.

Claims for damage or loss in transit should be made against transportation company, and notation of any such loss or damage should be recorded on delivery receipt, and all such claims should be made against the transportation company by the consignee.

The railroads assume all responsibility for such loss and damage when they issue to us their receipt showing shipment made by us, as is always our custom, well packed and in good order.

We always gladly assist in establishing those claims.



### **ESTIMATES GLADLY GIVEN**

On request, we will gladly give estimates on any material or special equipment.

Our shipping department will furnish shipping cost, and advise as to best routing, etc. Shipments traced when advisable and necessary, but it is to be understood that "tracing" only locates a shipment in its transit. It is up to the railroad to keep it moving and deliver.

Refer to this catalog in all of your orders and order each article by figure number, if given. Where no figure number is given, describe fully the article or material desired.

### **SHIPPING FACILITIES**

We have exceptional shipping facilities—our own railroad siding, and immediate proximity to the Ohio River and freight depots of the Pennsylvania, the New York Central, the Baltimore & Ohio, C. & O., Erie, N. & W., Big Four, Southern, C. I. & W., L. & N., Cincinnati Northern, and C. L. & N. railroads.

These roads connect with practically every system in the country, and enable us to deliver at our door to a transportation agent able to reach any point in the United States in quick time.

### **BUCKEYE SERVICE**

Just what the old buck's head implies. It horns through every obstacle—and gets there. Really, that is one of the strong points of the Company—good service. There is nothing within the power of the members of the Company that will not be done to further the interest of its friends and patrons. We never balk at any effort to make deliveries that seem impossible, and we never deliver anything that, to our knowledge, is not right. In other words, Buckeye Service Makes Good.

## Some Prominent Members of the Buckeye Family

**BUCKEYE PARTING** is our most famous product—without a peer, without a failure. Everybody knows it; almost everybody uses it, because its quality has never been impaired and it never disappoints. It Parts.

**BUCKEYE HIGH TEMPERATURE FURNACE CEMENT.**—Withstands the heat. Line your furnace; that will prove it.

**LINCO CORE COMPOUND.**—A dry core compound for light work, with all the advantages of oil.

**777 PLUMBAGO.**—The lead with the body.

**BUCKEYE PATENT SNAP FLASK GUIDES.**—Three in One. For a perfect lift.

**BUCKEYE BINDER.**—A black dry core compound—100% Binder.

**BUCKEYE FACINGS.**—Among our many grades, one exactly meets your needs.

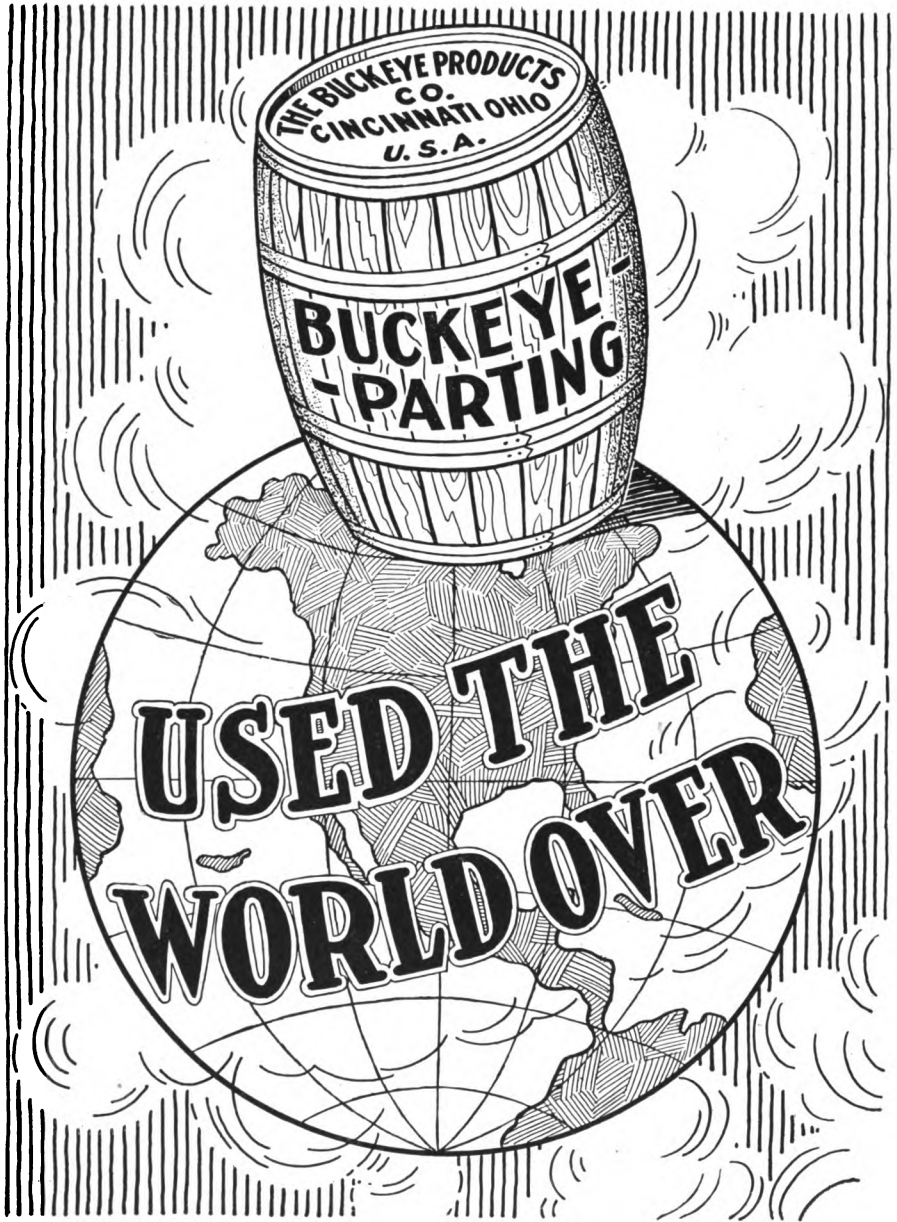
**BUCKEYE FURNACES.**—Will melt metals at low fuel cost.

**BUCKEYE CORE OILS.**—The main thing is uniformity in quality—That's Buckeye.

**BUCKEYE FLUX.**—The reliable metal cleanser for brass, bronze, and copper.

**BUCKEYE VIBRATORS.**—They vibrate.





***The Buckeye Products Company,***  
CINCINNATI, OHIO, U. S. A.

## Buckeye Parting Compounds

These products are materials manufactured according to exact formulas, taking the place and doing the work of Lycopodium, the expensive imported product of vegetation. Almost every foundryman familiar with modern practice has learned the economic value of parting his molds by means of the compounds manufactured by this company.

### 1

#### BUCKEYE PARTING

Light in color, and very low in specific gravity; is the most famous and the most reliable of all partings. There is nothing theoretical about Buckeye Parting—no guess work—it parts and never fails.

Buckeye Parting is clean to handle and very light in color, permitting the user to see exactly how much of the material he is dusting over the pattern and on the mold.

Buckeye Parting will neither cut, wash, nor burn off the face of the mold. It prevents the sand from sticking to the pattern, and produces sharp, clean, clear, faultless molds, with every line, shape, and conformation delineated precisely as in the pattern.

It assures perfect lifts and draws, and entirely eliminates the necessity of ever patching the mold.

It assures smooth, sharp, and seamless castings, saves time and labor in the grinding, finishing, and polishing departments.

In molding machine work, its use increases the production of castings 20 to 30 per cent.

There is not the slightest possibility of Buckeye Parting curling when the mold is sprayed. It will not run off nor follow the swab.

And, above all, it contains absolutely nothing injurious to the health.

It is non-inflammable, and leaves no residue in the bag.

Samples sent on request. Try it now—for your own benefit as well as ours.

**Packed in 125-lb. kegs, price per pound, 6 cents.**

**Packed in 375-lb. barrels, price per pound, 5 cents.**

**Special prices in carloads.**

### 2

#### OKAY PARTING

This parting is manufactured by the same formula that is used in our highest grade Buckeye Parting, with the exception that it is developed to a darker color, and is also about ten per cent higher in specific gravity. Okay Parting eliminates the use of Charcoal, Rosin, Mill or Burnt Sand, etc., for parting purposes. On all heavy green sand molding in which large patterns are employed we recommend that the patterns first be given a coat of kerosene before applying the parting.

**Packed in barrels, 400 lbs., net, price per pound, 4½ cents.**

**3 NATIONAL PARTING**

Where conditions do not warrant the use of our highest grades of parting, we offer our National grade, which is not so fine in texture, and is perfectly available for certain classes of work.

**Packed in barrels, 450 lbs., net; price per pound, 4 cents.**

**4 XXX PARTING**

A specially prepared dark brown Parting of extremely fine texture for those who prefer a very dark parting. Is adaptable for all classes of work.

**Packed in barrels, 425 lbs., net; price per pound, 8 cents.**

**5 LYCOPODIUM**

We are in position to furnish genuine thrice-sifted Russian Lycopodium at market price.

**6 LYCOFOAM**

A perfect Lycopodium substitute for technical use. It compares favorably with genuine Lycopodium in color, texture, and specific gravity, and is less inflammable. Price quoted on application.

**7 LINCO CORE COMPOUND**

Linco Core Compound is a dry core compound, manufactured by us exclusively. Perfectly available for use in all cores, for brass, bronze, aluminum, malleable and small iron castings. Repeated tests have proven its superiority to flour, oil, rosin, and all other core compounds. Makes a perfectly smooth core which shakes out of the casting very easily.

It will not blow, as it produces no gas; will not swell, attract moisture, or draw dampness, and does not give off any offensive odor.

Linco Core Compound does not require as much heat in drying as cores made with oil, and dries quickly.

Old core sand may be used over and over again with Linco Core Compound by adding a small amount of bar, bank, beach, river, or sharp sand to open up the sand.

Linco Core Compound can also be used in skin-dried work by adding a small quantity to the facing sand, which, when dried, produces a surface that will not cut or wash.

Linco Core Compound can be used in proportions of from 1 to 40 to 1 to 100 parts of sand, depending on the nature of the sands used.

We recommend that Linco Core Compound or any other dry core compound be THOROUGHLY mixed with the sand before tempering.

**Packed in barrels, 250 lbs., net; price per pound, 10 cents.**

**Special prices in carloads.**

**8 COMBINATION CORE COMPOUND**

We recommend this compound for use in combination with linseed and core oils, and in many instances can be used to the extent of 40 per cent of amount of oil used.

It gives a bond to the core while green, requires less time and heat when drying, produces a strong core, and is easily released from the casting. **Packed in bags or barrels. Price per pound, 8 cents.**

**9 GOLDBUCK CORE COMPOUND**

This is a composition of vegetable by-products. This compound we recommend for making cores for immediate use.

Contains no materials that will deteriorate if an excess amount of water is used in tempering. Exceptional results obtained by its use in cores for aluminum castings.

**Packed in bags or barrels. Price per pound, 8 cents.**

**10 BUCKSOL**

A refined dry product having the cohesive characteristics of flour, dextrines, and rosin.

**Packed in bags. Price per pound, 5 cents.**

**11 DEXTRINE**

All grades of Dextrine packed in bags or barrels, at market price.

**12 SUPERBOND**

Is a core compound unexcelled for intricate and particular work in connection with cores for castings having refinements of form and delineation. It is a compound that is the fruit of long and patient experimentation with most delicate and important castings.

The core raps easily from the casting.

**Packed in barrels, Price per pound, 7 cents.**

**13 BUCO STEEL CORE COMPOUND**

Composed especially for cores for steel castings. Gives a bond to the cores while green and imparts great strength to the core when baked. Used in proportions of from 1 to 25 to 1 to 60 parts of sand, depending upon the nature of the sand used.

**Packed in barrels, 400 lbs., net. Price per pound, 4 cents.**

## **Buckeye Binder Core Compound**

### **100 Per Cent Binder**

For iron and steel foundry cores; also dry and green sand molds.

#### **14**

#### **BUCKEYE BINDER**

must not be construed as being one of the ordinary core compounds which are being offered to the foundrymen daily.

It is a black, dry compound, and the only material that will give to the core practically the same high qualities of oil and relieve itself easily from the casting without being compelled to burn the life out of the core when drying.

Gives excellent results, added to the facing when making dry sand molds, because it adds strength to the facing and assists in peeling the casting freely.

Makes a strong core which can be safely handled in the green, and a hard, smooth core when baked, which will not absorb moisture or crumble with age.

Throws off no offensive odor or smoke, and makes but little gas. GUARANTEED to leave a clean, smooth surface, and not to swell, blow, crack, or buckle.

Buckeye Binder Core Compound is very low in specific gravity, running thirty-five (35) pounds to the cubic foot, while other black compounds weigh from forty-five (45) to fifty (50) pounds to the cubic foot. Since you purchase by weight and use by bulk measurement, the economies effected by using Buckeye Binder Core Compound are readily recognized.

It will bind from 30 to 100 parts of sand, depending upon the nature and condition of the sand used, and a large part of it may be gangway sand.

Our experts in the art of founding are at all times ready to answer any questions and to assist in obtaining satisfactory results from the use of Buckeye Binder in modern foundry practice.

## **General Directions for the Use of Buckeye Binder Core Compound for Small and Medium Cores**

Mix together thoroughly twenty (20) parts molding sand and twenty (20) parts sharp, beach, bar, or white sand with one (1) part Buckeye Binder Core Compound. Use plenty of water in tempering this mixture, make cores, and dry in the usual manner.

### **ANOTHER FORMULA FOR SMALL AND MEDIUM CORES**

It is always desirous, from an economical standpoint, in modern foundry practice to use as much old sand as possible, and a mixture that has met with great success is forty-five (45) parts of old burnt core sand and fifteen (15) parts of new molding sand and one (1) part Buckeye Binder. This mixture should be used as wet as possible, as it will not stick to the core boxes, nor will the cores swell or lose their shape. Cores made with Buckeye Binder Core Compound are absolutely true to the size of the core-box.

### **FOR HEAVY OR LARGE CORES**

Mix together thoroughly ten (10) parts of coarse sharp sand or gravel, ten (10) parts of Lumberton or a heavy body loam sand, and ten (10) parts of old burnt core or gangway sand, and one (1) part of Buckeye Binder Core Compound. Temper with water, work, and dry in the usual manner.

### **ANOTHER MIXTURE FOR LARGE CORES**

Fifteen (15) parts sharp sand or gravel, fifteen (15) parts old burnt core sand, fifteen (15) parts new loam sand, and one (1) part Buckeye Binder Core Compound. Mix thoroughly, and use as wet as possible.

Cores made with Buckeye Binder Core Compound will not rebake in the castings after they are poured. This is a great advantage over other black core compounds.

Buckeye Binder Core Compound will bind sand in proportions of from one (1) part of Binder to thirty (30) parts of sand up to one (1) part of binder to one hundred (100) parts of sand. Should the foregoing result in cores being too hard, the amount of binder may be decreased or the amount of sand may be increased.



## General Directions for the Use of Buckeye Binder Core Compound in Facing Sands

Buckeye Binder may be used either with or without sea or stone coal, but we recommend the use of either the sea or stone coal in connection with Buckeye Binder in very large and heavy green and dried sand castings.

For heavy cast spur gears, pinions, and bevel wheels, or any large, chunky castings, use from thirty (30) to forty (40) parts of facing sand to one (1) part of Buckeye Binder. Mix thoroughly, temper well with water, and mold in the usual manner. This mixture can be used either green or dried, and a good surface will be obtained which will lessen the labor in cleaning.

For smaller castings the amount of Buckeye Binder in the facing sand may be decreased to one (1) part of Buckeye Binder to forty (40) or fifty (50) parts of the facing sand. In these small castings we recommend that about a No. 8 riddle be used for sifting the sand on the pattern. This will result in excellent castings being produced, free of scale, which is so injurious in machining.

Buckeye Binder is now being used by many of the most prominent foundrymen throughout the country. It has excellent qualities, having proved to be not only an excellent binder in the making of cores, but also as an aid to the foundryman for the production of castings that are smooth, pleasing to look at, and easy to machine.

**Packed in 300-lb. barrels. Price per pound, 3 cents.**

**Packed in 125-lb. bags, price per ton, \$40.**

**Carload prices on application.**

### 15

### COROLINE

A combination in soluble form of sundry elements, producing a binding material which is non-fermentative and not affected by climatic changes of temperature.

When it is to be mixed with sand for core-making, Coroline should be thinned by the addition of an equal amount of water, and then combined with various sands in varying proportions, which experience will determine, in ratios ranging from 1 to 50 to 1 to 120 parts of sand.

Coroline is used as a partial substitute for linseed and core oils, also dry compounds, and economizes the use of oils or compounds by being usable in mixture with sands previously mixed with oil and compounds. A substitute in all uses for molasses, more economical and much better.

The adhesive qualities of Coroline make it especially valuable in

core and mold wash mixtures, also as a spray for skin-dried work and for swabbing runners in a mixture with water at about 1 part Coroline to 15 parts water.

**Packed in barrels. Price per gallon, 18 cents.  
Special prices on carloads.**

**16**

### **CORO**

A liquid combination of core binding materials, especially adapted for all Brass, Aluminum, Malleable, and Light Iron Cores.

Coro should not be used in combination with oil, rosin, flour, or other core binders.

Coro can be used when pasting cores together in place of flour.

It is essential that no sand containing oil or rosin be used. Cores made with Coro dry quickly, and should be baked to a dark brown color.

**Packed in barrels. Price per gallon, 50 cents.**

## **Core Oils**

Linseed oil is the natural standard base oil of the various grades of core oil we produce. Uniformity of product is the most important element in the successful use of core oil mixtures, and it is in the successful maintenance of standards that we excel.

**17**

### **BUCKEYE LINSEED CORE OIL**

This prime core oil is the nearest to natural linseed oil in all of its binding qualities that can be blended of vegetable oils. We recommend this grade for every purpose where oil cores are made. It is the equal of linseed in binding qualities, but in quickness of drying it excels linseed, and is therefore superior to it for core-oil purposes.

**18**

### **OKAY CORE OIL**

For general all-around iron foundry use we recommend our Okay Core Oil, a grade with a name indicative of its value.

**19**

### **BUCKEYE SPECIAL CORE OIL**

For uses where high-standard oils are not required. This blend follows a formula which makes the oil at a price within the reach of all.

Prices on all our oils quoted on application. All packages well coopered.

In connection with the use of our core oils, consult the directions for use of Coroline, which, by combination, makes for economy in the use of oils. (See page 17.)

**20**

**LINSEED OIL**

Pure raw and boiled Linseed Oil at current prices.

**21**

**FOUNDRY FLOUR**

Buckeye and Rex Foundry and Core Flour—two grades of selected flour well adapted for foundry purposes.

**Direct mill shipments in carloads. Prices on application.**

**22**

**B. F. SPECIAL FLOUR**

**For Brass Founders.**

**Packed in barrels. Prices on application.**

**23**

**FOUNDRY ROSIN**

Selected rosin suitable for foundry uses. We furnish ground and pulverized rosin on order.

**In carload or barrel lots. Prices on application**

**24**

**MOLASSES**

Genuine Black Strap Foundry Molasses, in barrels only, carload or less, in tank cars.

**Prices on application.**

**25**

**GLUCOSE**

**Barrel shipments only, at current prices.**

**26**

**CORE SAND**

All grades of core sand for every requirement, shipped in any quantity from our sources of supply located at various points in the country, to insure practicable freight rates.

**Samples and prices on application.**

## Core and Mold Washes

It is hardly necessary to go into detail with practical foundrymen as to the purpose and use of core wash. Our aim is to provide washes for every class of needs—and they as many as the classes of castings produced.

### 27 BUCKEYE CORE WASH

This highest grade wash with a plumbago foundation is perfectly blended, and will not wash, run, or cut. This is recommended for universal foundry use—for heavy as well as light work—and for small as well as large cores and molds. Materials are very finely ground and bolted, insuring an even surface in application, and smooth castings.

**Packed in 500-lb. barrels. Price per pound, 5 cents.**

### 28 GRAPHO CORE WASH

A valuable formula is followed in the production of our Grapho Core Wash, which is intended to serve general foundry purposes at a medium cost. This makes an excellent bag blacking or facing for molds.

**Packed in 500-lb. barrels. Price per pound, 4 cents.**

### 29 SELON CORE WASH

A great many cores do not justify the expense of higher grades of core wash. Where these conditions prevail our Selon Core Wash answers very satisfactorily. The mere fact that it is produced at a low price does not mean that its merit is small. It is really better than its price.

**Packed in 500-lb. barrels. Price per pound, 3 cents.**

We recommend the use of Coroline Liquid Binder in a thinned solution with water as an admixture for use with all core washes. This addition strengthens the binding elements we use in our own various washes. (See page 18.)

### 30 A. B. C. CORE WASH For Brass and Aluminum Founders

A perfect wash prepared for all cores of every kind used by aluminum and brass founders. Can be applied to cores in a thin solution by brush, or cores can be dipped.

Water is the only admixture needed in preparing this compound for use as a wash.

**Packed in 100-lb. kegs and 300-lb. barrels.  
Prices per pound: Kegs, 4 cents; barrels, 3 cents.**

**31                    SILICA CORE OR MOLD WASH**

A finely-ground silica wash. To be mixed with water and Coroline or Molasses, to be used as a binder. Valuable for use in steel foundries on cores and molds.

**Packed in bags and barrels or bulk carloads. Price per ton, in bags, \$25; price per ton in barrels, \$30. Car lot prices on application.**

**32                    BUCKEYE CHILL AND STEEL CORE COATING**

For coating all steel cores, set-screws, and chills of all kinds, allowing the metal to lay on them quiet, and not blow; also permitting the steel cores, etc., to be easily removed from the casting.

Buckeye Chill and Steel Core Coating is in liquid form, ready for immediate use, to be applied by brush of any kind to the steel cores, chills, etc., giving them a light coating, then being allowed to dry when they are ready for use.

When steel cores or chills, etc., are once treated with a coating of this material they do not draw moisture, and can be placed in the mold as made, eliminating the necessity of leaving the molds open until just prior to pouring.

**Quart cans, per can, \$1.50; gallon cans, per can, \$5.**

**33                    SEA COAL FACING**  
**(Also Called Stone or Bituminous Coal Facing)**

Our Sea Coal is high in carbon and volatile matter and low in sulphur and ash.

**Grades**

A—Coarse. For extra large and heavy castings.

B—Medium Coarse. For medium heavy castings.

C—Medium or Regular (most generally used).

D—Very finely ground. Especially adapted for radiator castings.

E—Bolted (silk bolted.) For stove and piano-plate castings.

Packed in paper and jute bags and in barrels. Prices quoted in car lots and less on the various grades. Direct mill shipments from various points made to minimize freight rates.

**34                    BUCKEYE CUPOLA AND LADLE WASH**

Buckeye Cupola and Ladle Wash is produced from highly refractory elements. Can be applied to the walls of the cupola, preventing the slag from adhering to the lining. Unexcelled as a ladle wash.

**Packed in 500-lb. barrels. Price per pound, 3 cents.**

**35                    LIMESTONE OR DOLOMITE FLUX**

Crushed Limestone or Dolomite for cupola fluxing furnished in carloads and less.

**Price on application.**

## Plumbago

We import selected Plumbago from Ceylon and the East Indies, and it is graded with great care by experts, so that we are able to maintain a uniform standard in the various grades we offer to the trade.

The grinding and bolting processes through which it passes insure an extreme degree of fineness in our product.

Every foundry need is fully covered by one or more of our brands.

36	No. 999 Ceylon Plumbago.....	Price per lb., 10 cents
37	No. 808 “ “ .....	“ “ “ 9 “
38	No. 777 “ “ .....	“ “ “ 8 “
39	No. 697 “ “ .....	“ “ “ 7 “
40	No. 675 “ “ .....	“ “ “ 6 “
41	CEI East India Silver Lead.....	“ “ “ 8 “
42	XCL “ “ “ “ .....	“ “ “ 7 “
43	AZ “ “ “ “ .....	“ “ “ 6 “

### LUBRICATING PLUMBAGO AND GRAPHITE

44	Flake—A.....	Price per lb., 20 cents
45	Powdered—A.....	“ “ “ 18 “
	Powdered—B.....	“ “ “ 15 “

### ELECTROTYPING PLUMBAGO AND BLACK LEAD

46	Molding.....	Price per lb., 20 cents
47	Polishing.....	“ “ “ 20 “
48	Combination Molding and Polishing.....	“ “ “ 22 “

### GRAPHITE FOR PAINT PURPOSES

49	Buckeye—First Grade.....	Price per lb., 10 cents
50	Elasto—Second Grade.....	“ “ “ 8 “

### GRAPHITES

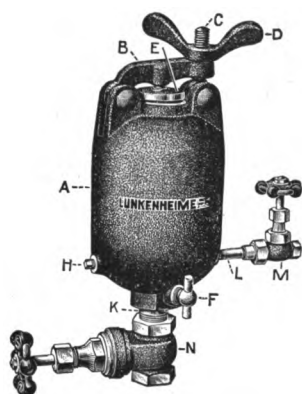
51	Crystalline.....	Price per lb., 10 cents
52	American.....	“ “ “ 6 “
53	Mexican.....	“ “ “ 6 “

### 54 BUCKEYE BOILER GRAPHITE

A pure carbon air-floated graphite, with all deleterious properties eliminated, for introduction through the water-feed into the interior of the boiler, where it permeates the most remote recesses and films the inner surfaces with a protection of great value in elimination and prevention of scale and injurious deposits of mineral-charged waters which corrode. It adds to the life of the boiler and lessens the dangers which occur when scale and deposits eat into the inner lining. Incidentally, it reduces fuel cost in raising steam.

Packed in barrels and kegs. Prices per pound:

Barrels.....	12 cents	Kegs.....	14 cents
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## Buckeye Boiler Graphite Feeder

### To Connect

The "Buckeye" is furnished complete with  $\frac{3}{4}$ -inch Double Disc Gate Valve;  $\frac{1}{8}$ -inch Regrinding Globe Valve, with female union, and  $\frac{1}{8}$ -inch pipe plug and nipple. The Gate Valve should be screwed onto the shank of the feeder, as shown in view illustrating method of attaching, and the Globe Valve attached to either steam connection (which ever is most convenient), by means of the nipple furnished; close the opposite steam connection with plug provided; attach the Feeder to the water-feed line between the pump and check valve, or, where more than one boiler is fed by the same pump, between the main feed line and check valve. Connect the Globe Valve to live steam line, using  $\frac{1}{8}$ -inch pipe.

### To Fill

Tightly close both the Gate and Globe Valves and drain the water from reservoir by means of the drain valve F. After water has been drained, close drain valve, fill cup with powdered graphite, and tightly close the cover. By simply opening both the Gate and Globe Valves, the Feeder is made operative.

### To Operate

The feeding of the graphite is actuated by pressure impulses from the steam connection through the injector nozzles J and K. These impulses occur between strokes of the pump, or during the interval when there is a momentary lapse of pressure in the pump end of the feed water line. Each impulse forces a small quantity of graphite into the line, from where it is carried into the boiler by succeeding strokes of the pump. The "Buckeye" Boiler Feeder is made in two sizes—Nos. 1 and 2. When ordering, be sure to specify size desired.

**Prices:** No. 1, capacity 2-3 lb., \$18.00; No. 2, capacity 1 $\frac{1}{4}$  lbs., \$20.00.

## Facings and Blackings

This department of our products is in charge of men who have gained their knowledge by actual foundry experience covering the broadest phases of practice. The great variety of uses to which facings are put are familiar to them, and accordingly in the following list of our brands there are facings that will meet every foundry need.

We will be glad, on request, to designate the particular brand that will answer your requirements, if the general description does not make it clear to you, and will also give the benefit of any expert advice that lies in our power.

### GREEN SAND FACINGS

		Price per lb., 10 cents
36	No. 999 Ceylon Plumbago.....	" " " 10
37	No. 808 " ".....	" " " 9
38	No. 777 " ".....	" " " 8
39	No. 697 " ".....	" " " 7
40	No. 675 " ".....	" " " 6
41	CEI East India Silver Lead.....	" " " 8
42	XCL " " " ".....	" " " 7
43	AZ " " " ".....	" " " 6
51	Crystalline Graphite.....	" " " 10
52	American ".....	" " " 6
53	Mexican ".....	" " " 6
56	Buckeye Red Facing.....	" " " 3
57	Heavy Machinery Facing.....	" " " 5
58	Mica Facing.....	" " " 4
59	Soapstone.....	" " " 2
60	White Talc.....	" " " 2
61	Yellow Talc.....	" " " 2
62	Red Talc.....	" " " 2
63	Car Wheel Facing.....	" " " 2½
64	Ferro Face.....	" " " 6
65	Bull Run Talc.....	" " " 2½

### MOLD BLACKINGS

		Price per lb., 5 cents
66	Buckeye Blacking.....	" " " 5
67	Grapho ".....	" " " 4
68	Selon ".....	" " " 3
69	A. B. ".....	" " " 3
64	Ferro Face ".....	" " " 6



# THE BUCKEYE PRODUCTS COMPANY

## STOVE PLATE FACINGS

Our Stove Plate Facings are produced from best quality of selected materials, finely-ground and bolted, and absolute uniformity maintained.

70	Buckeye Heavy Stove Plate Facing	Price per lb.,	5	cents
71	Buckeye Return Stove Plate Facing	" " "	5	"
72	Sterling Heavy Stove Plate Facing	" " "	4	"
73	Lustrous Return Stove Plate Facing	" " "	4	"
74	Rufus Heavy Stove Plate Facing	" " "	3½	"

## CHARCOAL FACINGS

75	Buckeye Special Charcoal Facing	Price per lb.,	7½	cents
76	Apollo Prepared " "	" " "	6½	"
77	Brass Founders' " "	" " "	5	"

## 64 FERRO FACE

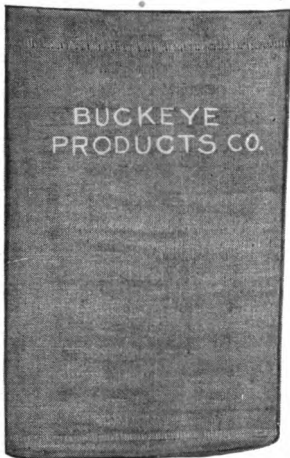
A general all-round Facing and Wash, a substitute for high-priced plumbago in many instances; peels the casting freely and gives it a good color.

Packed in 450-lbs. barrels. Price per lb., 6 cents.

## FACING AND PARTING DUST BAGS

We can furnish Facing and Parting Dust bags in the following sizes:

78	No. 1—For Parting	5 x 9
79	No. 2— " "	7 x 11
80	No. 3—For Facings (Fine)	
81	No. 4— " "	(Coarse)



## GENERAL PRICE LIST—FACINGS AND BLACKINGS

36	No. 999 Ceylon Plumbago	Price per lb.,	10	cents
37	No. 808 " "	" " "	9	"
38	No. 777 " "	" " "	8	"
39	No. 697 " "	" " "	7	"
40	No. 675 " "	" " "	6	"
41	CEI East India Silver Lead	" " "	8	"
42	XCL " " " "	" " "	7	"
43	AZ " " " "	" " "	6	"
51	Crystalline Graphite	" " "	10	"
52	American " "	" " "	6	"
53	Mexican " "	" " "	6	"
56	Buckeye Red Facing	" " "	3	"
57	Heavy Machinery Facing	" " "	5	"

# THE BUCKEYE PRODUCTS COMPANY

58	Mica Facing	Price per lb.,	4 cents
59	Soapstone	" " "	2 "
60	White Talc	" " "	2 "
61	Yellow Talc	" " "	2 "
62	Red Talc	" " "	2 "
63	Car Wheel Facing	" " "	2½ "
64	Ferro Face	" " "	6 "
65	Bull Run Talc	" " "	2½ "
66	Buckeye Blacking	" " "	5 "
67	Grapho	" " "	4 "
68	Selon	" " "	3 "
69	A. B.	" " "	3 "
70	Buckeye Heavy Stove Plate Facing	" " "	5 "
71	Buckeye Return Stove Plate Facing	" " "	5 "
72	Sterling Heavy Stove Plate Facing	" " "	4 "
73	Lustrous Return Stove Plate Facing	" " "	4 "
74	Rufus Heavy Stove Plate Facing	" " "	3½ "
75	Buckeye Special Charcoal Facing	" " "	7½ "
76	Apollo Prepared	" " "	6½ "
77	Brass Founders'	" " "	5 "

## Talc and Soapstones

Our Talcs and Soapstones are prepared from carefully selected raw materials, especially high in hydrated silicate of magnesia, which is a basic essential in making these materials adaptable for foundry purposes.

The grinding and bolting processes of these materials are given particular attention to insure extreme fineness.

62	Buckeye Red Talc or Soapstone	Price per lb.,	2 cents
61	Buckeye Heavy Yellow Talc or Soapstone	" " "	2 "
60	Buckeye White Talc or Soapstone	" " "	2 "
	Buckeye Cream Talc or Soapstone	" " "	2 "
65	Bull Run Ted Talc or Soapstone	" " "	2½ "

Packed in bags or barrels. Special prices in carloads.

## 82 SUPERIOR CRUCIBLE CLAY

Superior Crucible Clay is recommended as a foundation facing in stove foundries, substituting those disagreeable materials, such as lime and cement.

Packed in 400-lb. barrels. Price per pound, 2 cents.

## Clays

### FIRE CLAYS AND REFRACTORIES

The adaptability of fire clays and other refractories differs vastly according to their properties of plasticity and refractoriness.

Clays running high in silica and alumina, which are recommended for high temperatures, are not as plastic as the lower grades of clay, and therefore we have various grades of clays and refractories for particular purposes.

We cover every scope of foundry needs in the following:

- 83 Buckeye American Crucible Clay.
- 84 Flintite Refractory Clay.
- 85 Open Hearth Clay.
- 86 Steel and Malleable Clay.
- 87 No. 1 General Foundry Clay.
- 88 No. 2 " " "
- 89 No. 3 " " "

Furnished in bags, barrels, and bulk. Carload and less.  
Prices on application.

### 90 KAOLIN

A material having very high refractory qualities, principally used in steel foundries.

Packed in bags. Carloads and less.  
Prices on application.

### 91 MICA SCHIST

We can furnish Mica Schist in various forms, carload and less.  
Prices on application.

### 92 GANISTER

Ground Ganister, when mixed with a small percentage of fireclay for binding purposes, makes an excellent lining for converters and for all purposes where exceedingly high temperatures are generated.

Packed in bags and in bulk. Carload and less.  
Prices on application.

### 93 FLUOR SPAR

A Flux and Purifier for Iron, Steel, and other metals. Used extensively in cupola practice, assisting in the elimination of phosphorus and sulphur, and producing a softer and stronger iron.

When used in the cupola Fluor Spar should be distributed evenly on top of each charge of iron, but none should be used in the first charge of the heat. Proportions generally used are not less than 10 nor more than 50 pounds to the ton of iron.

Furnished in ground, lump, and gravel form.  
Packed in barrels and bulk. Carload and less.  
Prices on application.

**94 80% FERRO MANGANESE**

Ferro Manganese is a natural alloy for the purification of iron. It increases the fluidity of the molten iron, expels sulphur, strengthens soft irons, and makes solid castings.

Should be used in the ladle before filling in proportions of one quarter to one-half of one per cent, depending on the quality of the iron. Ground or pea size recommended for ladle use.

**Furnished in lump, pea size, and ground form.**

**Prices on application.**

**95 50% FERRO SILICON**

Ferro Silicon should be used in the same manner as Ferro Manganese, to increase the percentage of Silicon in the metal.

**Furnished in lump, pea size, and ground form.**

**Prices on application.**

**96 BUCKEYE FLUX**

**The Reliable Metal Cleaner**

Will clean and make new metal from old scrap, skimmings, turnings, wash-metals, grindings, sweepings, etc.

Removes iron and all other impurities from brass, bronze, and copper.

Produces a pure homogeneous alloy by combining and bringing about a complete amalgamation of finely-divided metals.

Increases the tensile strength and eliminates all danger of burning in metal.

Is true economy when employed in the foundry for melting brass, bronze, and copper.

It eliminates blow-holes and spongy castings by increasing the fluidity of the molten metal, and prevents the same from absorbing sulphur and gases from oil, coke, or coal.

It will positively remove all iron (in a free state), oxides, and other impurities from brass, bronze, copper, and non-ferrous metal alloys.

It is the only material which may be employed to good advantage when new as well as old metals are being melted, as it forms a dense cover over the molten mass, which protects the same from oxidation.

It will reduce the percentage of loss due to oxidation at least one-half when melting brass, bronze, copper, or alloys.

It is unlike any other brass flux, because it will not attack or shorten the life of any crucibles or furnace linings.

For new metal and clean scrap, to prevent oxidation, use one (1) pound of Buckeye Flux to 100 pounds of metal. Same should be placed in the crucible after the first charge of metal has melted.

For old scrap, turnings, grindings, wash metal, sweepings, skimmings, etc., use two (2) pounds of Buckeye Flux to 100 pounds of metal. The flux should be previously mixed with the first charge of metal before placing same in crucible.

Buckeye Flux is packed in 100-lb. packages and 250 and 500-lb. barrels.

**Prices: 100-lb Boxes, per lb., 10 cents; 250-lb. (Half bbls.), per lb., 9 cents; 500-lb. Barrels, per lb., 8 cents.**



**97                      NON-CRUCIBLE FURNACE FLUX**

For cleaning and purifying non-ferrous metals and alloys, melted in non-crucible furnaces, preventing slag, etc., from adhering to furnace lining and likewise in pouring ladle.

Used in proportions of one-half to one per cent of amount of metal per heat, and should be placed in bottom of furnace or ladle and metal charged on top.

**Packed in 400-lb. barrels. Price per pound, 6 cents.**

**98                      SPECIAL SMELTING FLUX**

This Flux is recommended for the smelting and refining on a large scale of brass, bronze, and copper, wash metals, turnings, sweepings, grindings, skimmings, etc.

Used in proportions of from one to two per cent.

**Packed in 500-lb. barrels. Price per pound, 5 cents.**

**99                      STERLING ALUMINUM FLUX**

This material cannot be recommended too highly for cleaning and purifying new as well as old scrap aluminum, also turnings and grindings.

A teaspoonful stirred in on top of the molten bath produces unequaled results. Our Aluminum Flux recognizes no superior.

<b>Packed in</b>	<b>10-lb Cans.</b>	<b>Price per pound, 46 cents.</b>
" "	50-lb. "	" " " 36 cents.
" "	500-lb. Drums.	" " " 30 cents.

**100                    BUCKEYE NO-FLUX ALUMINUM SOLDER**

The most perfect solder made for soldering aluminum and repairing defective aluminum castings.

A permanent remedy for broken parts, flaws, shrinkages, blows, cracks, and cold shorts in aluminum castings.

The charm in using Buckeye No-Flux Aluminum Solder is in the simplicity with which it is applied, requiring only an ordinary untinned soldering iron, and without the use of a flux.

Guaranteed not to deteriorate with age or from any other cause. Not affected by electricity.

**Furnished in bars, convenient for use. Price per lb., \$1.50**

**101 CHARCOAL**

For all purposes. Furnished in lump, granulated, and ground form.  
**Prices on application.**

**102 PLASTER OF PARIS**

Special grade for making matches.  
**Price per bbl., \$5.00.**

**103 LITHARGE**

Used in connection with making oil sand matches.  
**Price per lb., 18 cents.**

**104 BUCKEYE PATTERN DRESSING**  
**For All Metal and Wood Patterns**

Buckeye Pattern Dressing prolongs the life of wood patterns, will not gum, and prevents metal patterns from corroding. It dries readily, and prevents sand from adhering to all patterns. A thin coat applied with a soft brush is all that is necessary.

**Packed in one-gallon cans. Price per gallon, \$2.50.**

**105 TWISTED FOUNDRY HAY ROPE FOR CORES**

Spools weigh approximately 70 pounds each.

Size	Approximate No. of Feet to Spool	Price per Spool
$\frac{1}{4}$ "	2,000	\$3.50
$\frac{3}{8}$ "	1,400	3.50
$\frac{1}{2}$ "	1,000	3.00
$\frac{5}{8}$ "	900	3.00
$\frac{3}{4}$ "	700	3.00
1 "	500	3.00
1 $\frac{1}{4}$ "	400	3.00



## Molding and Core Sands

We are prepared to furnish Molding and Core Sands for all purposes in the foundry, from various points to minimize freight rates.

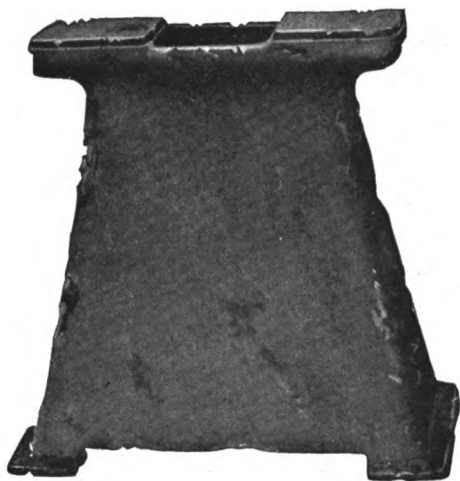
The following list will enable you to make a selection for your particular needs:

- 106 Hamilton Molding Sand—For Extra Heavy Castings.
- 107 Kentucky Loam Sand—For Medium Heavy Castings.
- 108 Zanesville Sand—For Medium Heavy Castings.
- 109 Indiana Sand—For Medium Heavy Castings.
- 110 Sandusky Sand—For Medium and Light Castings.
- 111 Newport Sand—For Medium and Light Castings.
- 112 Newport Sand—For Stove Plate Castings.
- 113 Albany Sand—For Stove Plate Castings.
- 114 Malleable Special Sand—For all Malleable Castings.
- 115 Buckeye No. 1 Molding Sand—For General Brass Castings.
- 116 Newport No. 5 Molding Sand—For General Brass Castings.
- 117 Buckeye No. 2 Molding Sand—For Fine Brass Castings.
- 118 Albany Sand—For Brass Castings.
- 119 Buckeye Prepared Sand—For Fine Brass Castings.
- 120 Windsor Lock Sand—For Fine Brass and Bronze Castings.
- 121 French Sand—For Fine Brass and Bronze Castings.
- 122 Buckeye Silica Core Sand.
- 123 Sugar Core Sand.
- 124 Lake or Fine Sharp Sand—For Cores.
- 125 River Sharp Sand For Cores.
- 126 Silica Sand For Steel Castings.
- 127 Silica Fire Sand.
- 128 Carborundum Fire Sand.
- 129 No. 1 Sand Blast Sand (Coarse).
- 130 No. 2 Sand Blast Sand (Medium).
- 131 No. 3 Sand Blast Sand (Fine)
- 132 Flint Shot Sand Blast Sand.

Prices quoted on barrels and carload on application

### 133 STEEL SHOT

Substituting Sand Blast Sand for cleaning castings. Samples furnished and prices quoted on application.



**Will make this right  
For filling imperfections in iron and steel  
castings**

## **134      Buckeye Iron and Steel Filler Cement**

**QUALITY O. K.**

**Buckeye Cement**, a metallic compound for repairing defects in iron and steel castings; is absolutely O. K.

**Buckeye Cement** is easily and quickly applied; it hardens readily, becoming a part of the casting itself, and has the same color as the casting.

**Buckeye Cement** perfectly smooths the surface of iron and steel castings, fills cracks, spongy and blow-holes, and has many uses of a similar kind.

**Buckeye Cement** is no cheap substitute: go to others for that.

**Buckeye Cement** permanently restores defective castings. If rightly applied it hardens readily, resembles the casting—expands and contracts with it.

### **PRICE RIGHT**

**Buckeye Cement** has the O. K. Quality and the Right Price.

This Cement speaks for itself; so do its users: that is the test of practical value.

This material is in powdered form, and for ordinary use add sufficient water to make it of a consistency of putty. Fill all cavities with filler and smooth to an even surface with a putty knife. Allow at least twenty-four hours to harden. Rub the filled surface with a smooth file or emery cloth. Result will show a uniform surface that will correspond with the casting. Keep contents of can tight and in a dry place. By following directions you secure a uniform casting at a low cost.

**Buckeye Cement** is put up in 10-, 25-, and 100-pound tins, and is guaranteed to give perfect satisfaction.

**Prices: 10 lb. tins, 30 cents lb.; 25 lb. tins, 28 cents lb.; 100 lb. lots, 24 cents lb.**























135

# ANNEALED CORE WIRE

We can furnish annealed Core Wire in bundles in assorted sizes from No. 1 to 20 gauge. (Cuts showing exact sizes of Wire).

(Washburn and Moen Gauge)

## CUTS REPRESENTING FULL SIZE OF WIRE.

	Nos.	Diameter.	Feet to lbs.
	1	.283	4.71
	2	.263	5.45
	3	.244	6.34
	4	.225	7.47
	5	.207	8.81
	6	.192	10.28
	7	.177	12.05
	8	.162	14.37
	9	.148	17.24
	10	.135	20.70
	11	.120	26.18
	12	.105	34.25
	13	.092	44.64
	14	.080	59.17
	15	.072	73.00
	16	.063	95.24
	17	.054	129.87
	18	.047	172.11
	19	.041	222.22
	20	.035	312.50

136

# BUCKEYE STOVE PUTTY

Buckeye Stove Putty is unexcelled as a putty or cement for all joints in stoves, ranges and furnaces, will not deteriorate with age, and heat cannot affect it.

Packed in 100 lb. tubs.....Price per pound, 8 cents  
 " " 700 " barrels....." " " 6 "

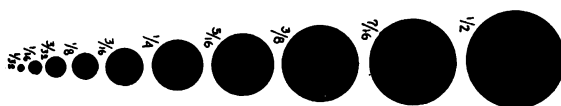
### BUCKEYE WAX WIRE CORE VENT



Buckeye Wax Wire is a hard, pliable wax which will not stick together at any ordinary temperature. It is the easiest and best way to vent any core. Simply bed it in the sand leading it to the proper outlet, and it will be entirely absorbed by the core when drying. It is guaranteed not to injure the most delicate core, to work in unison with any kind of core binder, and will not make the core soft around the vent.

### 137 ROUND WAX WIRE CORE VENT

Made  $\frac{1}{8}$ -inch and larger, with or without thread. Smaller sizes without thread only.



	1/32	1/16	3/32	1/8	3/16	1/4	5/16	3/8	7/16	1/2
Approx. No. of feet to pound.....	1,600	600	360	192	95	48	33	24	18	13
Approx. weight per Spool.....	1 lb.	1 lb.	1 lb.	3 lbs.	5 lbs.	5 lbs.	5 lbs.	5 lbs.	5 lbs.	5 lbs.
Price per lb.....	80c	48c	42c	36c	32c	32c	32c	28c	28c	28c

### 138 FLAT OVAL WAX WIRE CORE VENT

Made without thread only.

No.	Size	Approx. No. of Ft. to Pound	Approx. Weight Per Spool	Price Per Pound
2—	1-16 x 3-16	225	1 lb.	\$0.44
4—	3-32 x 1-4	105	3 lbs.	.40
6—	1-8 x 3-8	57	3 lbs.	.36
8—	3-16 x 1-2	28	5 lbs.	.32

### 139 WAX TAPERS

Packed in 5-pound boxes in the following sizes:

1/16", 3/32", 1/8", 3/16", 1/4", 18 and 24-inch lengths.

Price per pound, 50 cents.

### 140 BUCKEYE PATTERN WAX

A specially prepared wax for pattern use.

Price per pound, 40 cents.

### 141-142 BEESWAX AND BAYBERRY WAX

Furnished in various quantities. Prices on application.

## Molders' Soft or Dry Brushes



Fig. 143

### BRASS WIRE DRAWN

Per Doz.

Mixed Hair; length of stock,  $2\frac{3}{4}$  inches, 4 rows, block  $9 \times 1\frac{1}{8}$  inches. . . . \$8.00  
 Black or gray hair, length of stock  $2\frac{1}{8}$  inches, 4 rows, block  $9 \times 1\frac{1}{8}$  inches. 10.00

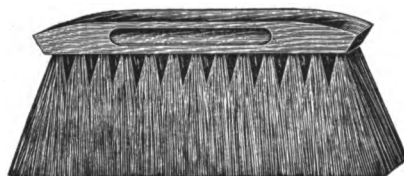


Fig. 144

Per Doz.

Mixed hair, length of stock  $2\frac{3}{4}$  inches, 5 rows, block solid,  $8\frac{3}{4} \times 2\frac{1}{4}$  inches,  
 wire fastened. . . . . \$7.00  
 Black or gray hair, length of stock  $2\frac{1}{2}$  inches, 5 rows, block solid,  $8\frac{3}{4} \times 2\frac{1}{4}$   
 inches, wire fastened. . . . . 9.00

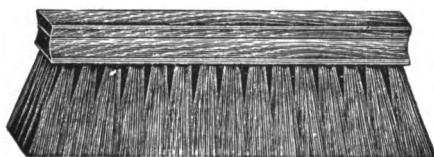


Fig. 145

### BRASS WIRE DRAWN

Per Doz.

Extra stiff, black or gray hair, length of stock  $2\frac{3}{4}$  inches, 5 rows, block  
 $9 \times 2$  inches. . . . . \$15.00  
 Black hair, length of stock 3 inches, 5 rows, block  $10 \times 2$  inches. . . . . 10.00

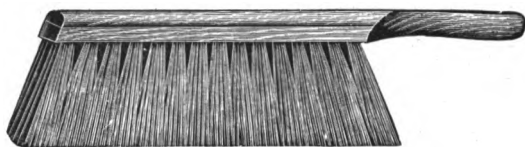


Fig. 146

**SOLID BLOCK. NATURAL VARNISHED. WIRE FASTENED.**  
**Stiff Black Hair**

	Per Doz.
7-inch, length of stock $2\frac{7}{8}$ inches.....	\$10.00
8-inch, length of stock $2\frac{7}{8}$ inches.....	11.00
9-inch, length of stock $2\frac{7}{8}$ inches.....	12.50



Fig. 147

**SOLID BLOCK. NATURAL VARNISHED. WIRE FASTENED.**  
**Mixed Gray Hair**

	Per Doz.
8-inch, length of stock $2\frac{1}{2}$ inches.....	\$8.00
9-inch, length of stock $2\frac{1}{2}$ inches.....	9.00

**MOULDERS' HARD BRUSHES**  
**Solid Blocks, Wire Fastened**



Fig. 148

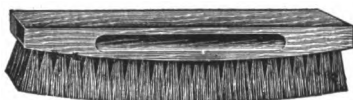


Fig. 149

Black or gray hair, length of stock 1 $\frac{1}{8}$ inches, 6 rows, block $10\frac{1}{8} \times 2\frac{1}{2}$ inches.....	\$10.00	Black or gray hair, length of stock 1 $\frac{1}{8}$ inches, 6 rows, block $8\frac{1}{2} \times 2\frac{1}{2}$ inches, rocker face.....	\$9.00
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**HANDLES.**—Any of the above Moulders' Hard Brushes can be equipped with handles if desired. Add to lists \$1 per doz.

CORE BOX BRUSHES



Fig. 150



Fig. 151

Solid Blocks. Wire Fastened.

Brush part  $5\frac{1}{2}$  inches long. Length over all 12 inches.  
Length of stock, 1 inch.

Per Doz.

- Fig. 150—Black China bristle, 4 rows, width of block  $1\frac{1}{8}$  inches ..... \$6.00  
Fig. 151—Black China Bristle, 4 rows, width of block  $1\frac{1}{8}$  inches ..... 6.00

HAND STOVE POLISHING BRUSHES



Fig. 152

Solid Block.

Per Doz.

- Gray fiber, length of block  $9\frac{1}{4}$  inches, two pointed ends, rocker face,  
natural finish ..... \$3.00

FLOOR BRUSHES



Fig. 152-A

Red Polished Blocks. Polished handles. Stiff Black Horsehair.  
Wire fastened.

Per Doz.

- Block 12 inches long, stock  $2\frac{3}{4}$  inches ..... \$12.50  
Block 14 inches long, stock  $2\frac{3}{4}$  inches ..... 14.50  
Block 16 inches long, stock  $2\frac{3}{4}$  inches ..... 16.25  
Block 18 inches long, stock  $2\frac{3}{4}$  inches ..... 18.25

### FLAT CORE PAINT BRUSHES

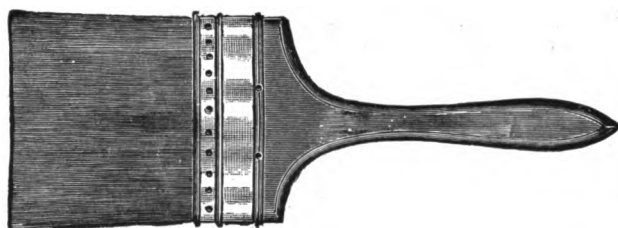


Fig. 153

### "FAMOUS" FLAT CORE PAINT BRUSHES

Black Chinese Bristles. Natural Varnished Handles. Metal Ferrules.

Width	Length of Bristles	Per Doz.
2½ inches	2¾ inches .....	\$6.00
3 inches	2¾ inches .....	8.00
3½ inches	3¼ inches .....	10.00
4 inches	3¼ inches .....	13.00

### RUBBERSET CORE PAINT BRUSHES

Rubber Bound.

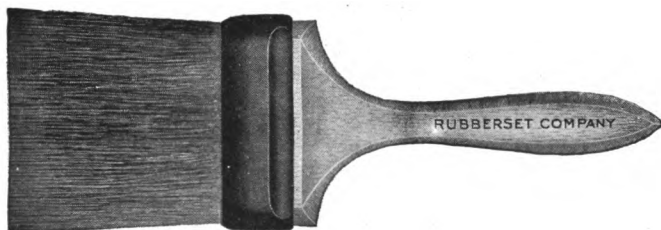


Fig. 154

### Black China Bristle, Set in Rubber

Width	Length of Bristles	Per Doz.
2½ inches	3 inches .....	\$12.00
3 inches	3¾ inches .....	15.00
3½ inches	3½ inches .....	18.00
4 inches	3¾ inches .....	22.00
4½ inches	4 inches .....	29.00



LEATHER BOUND CORE PAINT BRUSHES

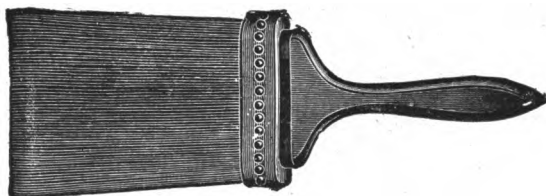


Fig. 155

“VICTOR” STUCCO CORE PAINT BRUSHES

Selected Black China Bristle, Leather Bound, Set in Rubber

Width	Length of Bristles	Per Doz.
3 inches	3¾ inches.....	\$25.00
3½ inches	4 inches.....	34.00
4 inches	4¼ inches.....	40.00
4½ inches	4½ inches.....	47.00

ROUND CORE PAINT BRUSHES

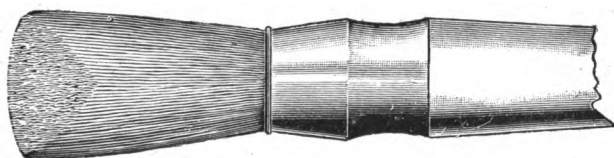


Fig. 156

Best Black Chinese Bristles, White Wood Handles, Nickel Plated Steel Ferrules, Bristles Securely Held in Rubber

No.	Diameter	Length of Bristles	Per Doz.
2	5/8-inch	1¾ inches.....	\$3.00
3	11/16-inch	1½ inches.....	3.50
4	¾-inch	1⅝ inches.....	4.00
5	13/16-inch	1¾ inches.....	4.70
6	15/16-inch	1⅞ inches.....	5.00
7	1-inch	2 inches.....	5.50
8	1 1/16 inches	2⅞ inches.....	6.50
10	1 3/16 inches	2¾ inches.....	7.50

CAMEL HAIR DUSTERS OR SWABS

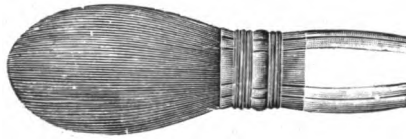


Fig. 157

CAMEL HAIR SPLIT QUILL DUSTERS OR SWABS

No.	Diam., Inches	Length of		List Doz.	No.	Diam., Inches	Length of		List Per Doz.
		Bristle, Inches	Bristle, Inches				Bristle, Inches	Bristle, Inches	
1	$\frac{3}{8}$	$1\frac{1}{8}$		\$3.50	6	$11/16$	$1\frac{3}{4}$		\$13.50
2	$7/16$	$1\frac{1}{4}$		4.50	7	$\frac{3}{4}$	$1\frac{7}{8}$		17.50
3	$\frac{1}{2}$	$1\frac{3}{8}$		5.50	8	$13/16$	$1\ 15/16$		21.00
4	$9/16$	$1\frac{1}{2}$		8.50	9	$\frac{7}{8}$	2		27.00
5	$\frac{5}{8}$	$1\frac{5}{8}$		11.00	10	$15/16$	$2\ 1/16$		30.00

CAMEL HAIR BRUSHES

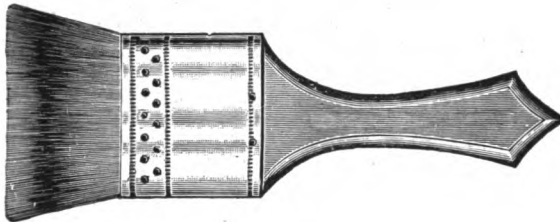


Fig. 158

Double Thick, Short Cedar Handles, Brass Bound

Width	List per Doz.	Width	Per Doz.
1 inch.....	\$8.50	$2\frac{1}{2}$ inches.....	\$23.00
$1\frac{1}{2}$ inches.....	12.00	3 inches.....	32.00
2 inches.....	17.00	4 inches.....	50.00



Fig. 159

WOOD HANDLE CAMEL HAIR DUSTERS OR SWABS

Medium Quality, Copper Ferrules, Long Handles

No.	Diam., Inches	Length of		Per Doz.	No.	Diam., Inches	Length of		Per Doz.
		Bristle, Inches	Bristle, Inches				Bristle, Inches	Bristle, Inches	
1	$5/16$	$1\frac{1}{8}$		\$4.20	6	$\frac{5}{8}$	$1\frac{3}{4}$		\$15.50
2	$\frac{3}{8}$	$1\frac{1}{4}$		7.00	7	$11/16$	$1\frac{7}{8}$		18.00
3	$7/16$	$1\frac{3}{8}$		8.20	8	$\frac{3}{4}$	2		22.00
4	$\frac{1}{2}$	$1\frac{1}{2}$		10.00	9	$13/16$	$2\ 1/16$		27.00
5	$9/16$	$1\frac{5}{8}$		13.60	10	$\frac{7}{8}$	$2\frac{1}{8}$		37.00

MOLDERS' FLAX SWABS



Fig. 160

Large, 18 inches long..... Per Doz. \$4.00

Steel Wire Casting Brushes, Bridle Patent

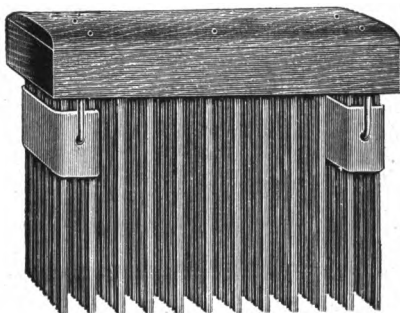


Fig. 161

Made of Heavy Flat Tempered Steel Wire

4x12 rows, length of wire 4 inches.....	\$5.00
5x12 rows, length of wire 4 inches.....	5.50
5x12 rows, length of wire 5 inches.....	6.00

STEEL WIRE CASTING BRUSHES, PLAIN

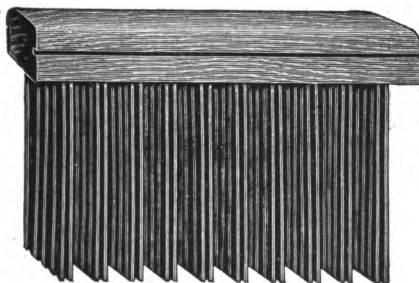
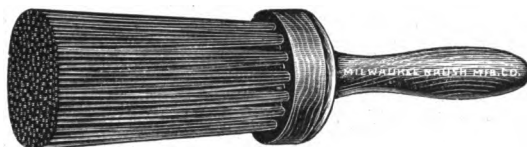


Fig. 162

Made of Flat Tempered Steel Wire

	Per Doz.
4x10 rows, length of wire 4 inches.....	\$4.00
5x10 rows, length of wire 4 inches.....	4.50
5x10 rows, length of wire 5 inches.....	5.00

**STEEL WIRE CASTING BRUSHES, ROUND**



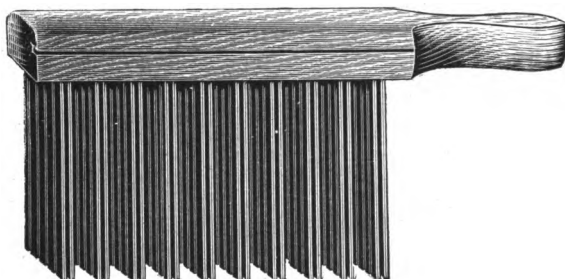
**Fig. 163**

**Made of Flat Tempered Steel Wire**

For brushing and cleaning car wheels and similar castings.

**Block 3 inches in diameter. length of wire 5 inches, per doz..... \$6.00**

**STEEL WIRE CASTING BRUSHES WITH HANDLES**



**Fig. 164**

**Made of Flat Tempered Steel Wire**

Length over all, 12 inches. Brush part 7 inches long.

**5x10 rows, length of wire 3 inches, width of block 2½ inches, per doz.... \$6.00**

**5x10 rows, length of wire 4 inches, width of block 2½ inches, per doz.... 7.00**

**FINE STEEL WIRE BRUSHES**



**Fig. 165**

**3 rows, length of wire 1½ inches, medium heavy, per doz..... \$5.00**

Can also be furnished with straight handle, when desired.

**166**

**HANDLES FOR PUSH BROOMS**

**Hardwood, Smoothly Sanded**

**4½ feet long, 1½ inch diameter, per doz..... \$2.50**

**4½ feet long, 1¼ inch diameter, per doz..... 3.00**

The above handles are tapered at end to fit handle-holes in brooms.

## Flat Tempered Steel Push Brooms

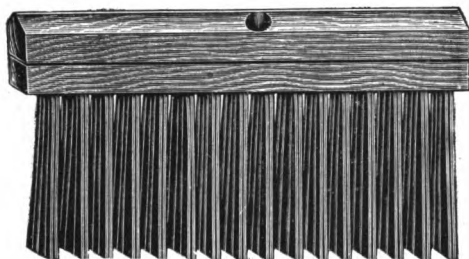


Fig. 167

### Four Rows

Block  $2\frac{3}{8}$  inches wide.

12 inch, length of wire 5 inches, per doz.....	\$10.00
14 inch, length of wire 5 inches, per doz.....	11.00
16 inch, length of wire 5 inches, per doz.....	12.00

## FINE ROUND STEEL WIRE PUSH BROOMS

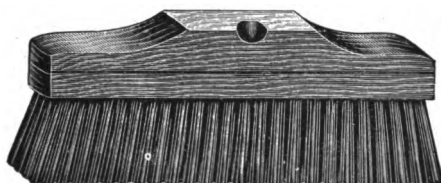


Fig. 168

8 rows, length of wire $3\frac{1}{2}$ inches, block $12 \times 2\frac{1}{2}$ inches, per doz.....	\$20.00
8 rows, length of wire $3\frac{1}{2}$ inches, block $14 \times 2\frac{1}{2}$ inches, per doz.....	24.00

Handles are not included in above prices.

## FACTORY AND WAREHOUSE BROOMS

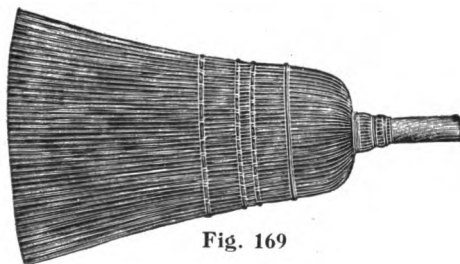


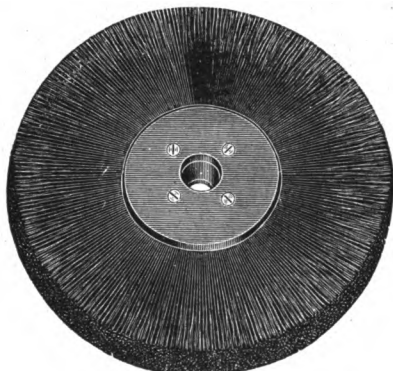
Fig. 169

### ALL CORN

Weight 36 lbs. per dozen, 1 wire band, 3 twine sewings, per doz.....	\$12.00
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### CORN AND BAMBOO MIXED

Weight 36 lbs. per dozen, 1 wire band, 3 twine sewings, per doz.....	\$18.00
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**"Buckeye" Solid Center Wire Wheel Brushes****Fig. 170**

These brushes are made of individual electric-welded sections, securely mounted on solid center hubs, each wheel being a complete unit. No metal rings to break or get out of place. These wheels are built to give maximum service at minimum cost.

The material used in the construction of our solid center wire wheel brushes is of the very best grade obtainable. The wire is made from high-grade stock, and drawn especially for wheels of this kind. The operator will find these wheels very handy, and easy to mount on the shaft or spindle; the assistance of a machinist is not required.

Made to fit any size spindle. When ordering, please state size arbor-hole. We are in position to furnish these wheels in any diameter or width of face required. Special price quoted upon receipt of specifications.

**STEEL WIRE WHEEL BRUSHES**

Diam.	Face, Width of	Flange, Diam. of	Sections Per Brush	Gauge of Wire	List Each
15 in.	2½ in.	6 in.	6	33 W. & M.	\$10.00
12 in.	2 in.	5 in.	5	34 W. & M.	9.00
10 in.	1¾ in.	5 in.	5	35 W. & M.	8.00
8 in.	1½ in.	4 in.	4	36 W. & M.	6.50
7 in.	1¼ in.	3 in.	4	36 W. & M.	5.50
6 in.	1⅛ in.	3 in.	4	36 W. & M.	5.00

We recommend that Wire Wheel Brushes be operated at approximately the speeds indicated below.

	Revolutions Per Minute
15 inches diameter.....	1,500 to 1,800
12 inches diameter.....	1,500 to 1,800
10 inches diameter.....	1,800 to 2,100
8 inches diameter.....	2,100 to 2,400
7 inches diameter.....	2,400 to 2,600
6 inches diameter.....	2,600 to 2,800

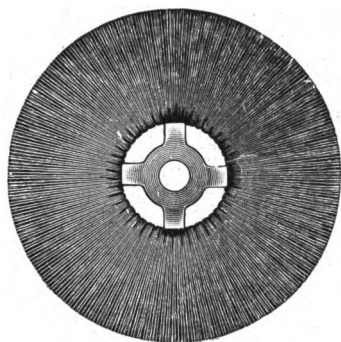


Fig. 171

### "OKAY" METAL CENTER WIRE WHEEL BRUSHES

Each section is a complete unit in itself. They are ready to mount directly on spindle, thus providing a very simple, convenient, and economical method of building up a brush of any required width of face without the use of metal hubs.

Made to fit any size spindle. When ordering, please state size of arbor-hole desired.

Diameter	Approx. Width Face	Gauge Wire	List Per Section
15 in.	7/16 in.	No. 33 W. & M.....	\$1.50
12 in.	3/8 in.	No. 34 W. & M.....	1.40
10 in.	3/8 in.	No. 35 W. & M.....	1.35
8 in.	3/8 in.	No. 36 W. & M.....	1.30
7 in.	5/16 in.	No. 36 W. & M.....	1.10
6 in.	5/16 in.	No. 36 W. & M.....	.90

### WIRE WHEEL BRUSH SECTIONS OR FILLERS

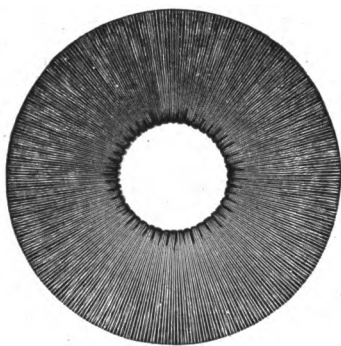


Fig. 172

Diameter	Sections Per Set	Gauge Wire	List Per Set
15 in.	6	No. 33 W. & M.....	\$9.00
12 in.	5	No. 34 W. & M.....	7.50
10 in.	5	No. 35 W. & M.....	7.00
8 in.	4	No. 36 W. & M.....	5.80
7 in.	4	No. 36 W. & M.....	5.00
6 in.	4	No. 36 W. & M.....	4.00



## Molder Shovels

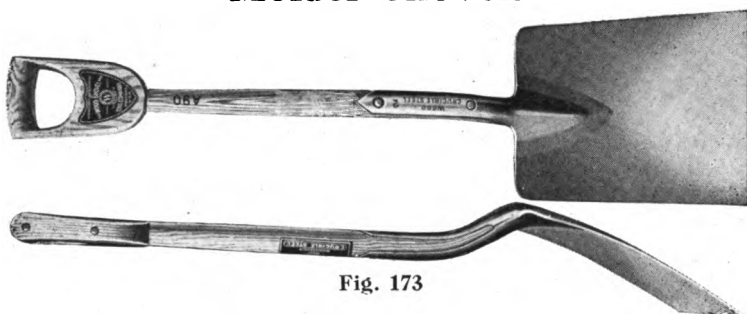


Fig. 173

### “D” HANDLE SOCKET STRAP

In the manufacture of our shovels, only the best materials obtainable for each particular class are used. As we carry a large stock of the following brands, we can make immediate shipment upon receipt of an order.

Socket Straps are furnished on all shovels except Ohio Brand, which will be furnished with Plain Strap.

The handles on our shovels are of selected ash, assorted according to the quality of the shovel. All Molder Shovels are full polished. “D” or split handles can be furnished on all grades. See illustration below of Split Handle. When ordering, specify type of handle and grade of shovel desired. We carry stock of following grades:

Brands	Price Per Doz.
Buckeye.....	\$20.00
Okay.....	18.00
Fairfield.....	16.00
Ohio.....	15.00

### MOLDER SHOVELS

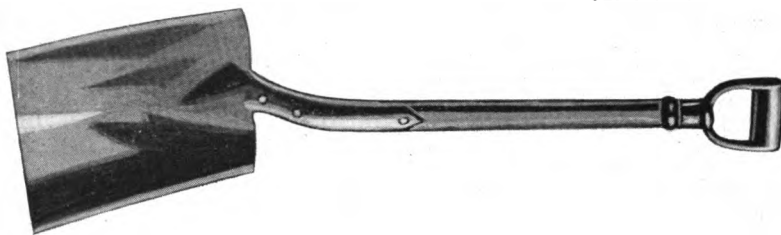


Fig. 174

### SPLIT HANDLE, SOCKET STRAP

For price, etc., see above

**"MATTHEWS" PATENT RAMMER SHOVEL**

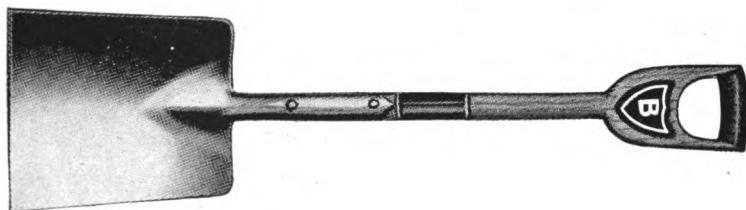


**Fig. 175**

The above cut illustrates a Molders' Shovel equipped with a special malleable iron "D" top. This iron "D" top is the same as the regular wood "D" used on regular shovels, except in the grip. The grip is practically the same in size as an ordinary handle, but of a convenient and proper form to be used both as a grip and a rammer. This iron top will give longer life than the regular wood "D" handle, a properly shaped ramming peen, and will be found useful on all classes of light and heavy work where the handle is used for ramming or where a rammer is required. Made in the following brands only:

Brands	Price Per Doz.
Buckeye.....	\$26.00
Okay.....	24.00
Fairfield.....	22.00
Ohio.....	21.00

**"BUCKEYE" SPECIAL TREATED MOLDERS' SHOVELS**



**Fig. 176**

We highly recommend our special treated shovel, because it is a decided improvement over the regular grades of molder shovels. We claim for this shovel that it will give better service than two of any other make of a regular standard shovel. This service is not secured by use of the old method of tempering, but by using steel plates which have been treated by a special process. While they are somewhat higher in price, they are an economical investment when considering the service they will render.

**Price per doz., \$24.00.**

## LABORERS' SHOVELS

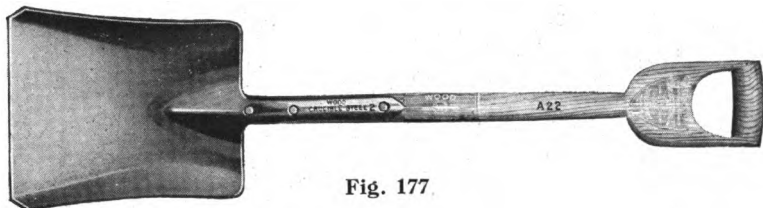


Fig. 177

Laborers' Shovels furnished in either "D" or Split Handle, in plain back square point. Following brands of these shovels in stock, which assures prompt shipment:

Brands	Price Per Doz.
Trusty.....	\$12.00
Eagle.....	10.00

Above prices are for Black Blades.  
For Polished Blades, add \$1.00 per doz.

## MOLDER SHOVELS

### Black Diamond Solid Shank

Our Black Diamond Shovels are made in one grade only, and that is absolutely of the best high carbon steel, very highly finished. The handles are selected from best second-growth ash.

This grade has been on the market for years, and we have never had a single complaint on material or workmanship.

Price per doz., \$24.00.

## COAL OR COKE SHOVELS

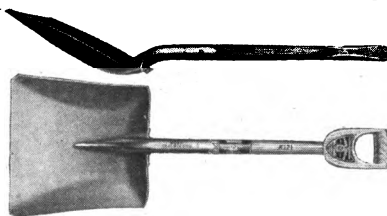


Fig. 179

### "D" Handle, Square Point, Hollow Back

No.	Dimensions	Buckeye, Per Doz.	Fairfield, Per Doz.
1	13¼x14½	\$18.00	\$16.00
2	14 x15	18.50	16.50
3	14¾x15¾	19.00	17.00
5	15 x17	21.00	19.00



Fig. 178

**DURO MALLEABLE IRON SHOVEL HANDLE**

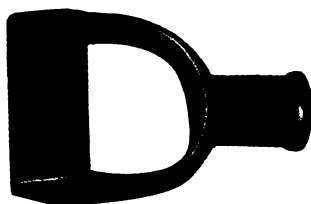


**Fig. 180**

Duro Malleable Iron Handles can be furnished on all our brands of shovels.

**Price per doz., \$5.00.**

**MATTHEWS PATENT PEEN MALLEABLE IRON SHOVEL HANDLE**

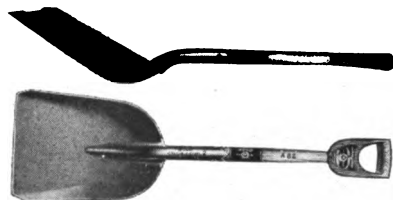


**Fig. 181**

This style of handle can be fitted on any of our brands of shovels, and makes a very efficient and durable tool.

**Price per doz., \$6.00.**

**COKE OR COAL SCOOPS**



**Fig. 182**

**Furnished with "D" Handle Only**

No.	Size	Buckeye, Per Doz.	Fairfield, Per Doz.
4	12½x15½.....	\$15.00	\$10.00
5	13½x16.....	15.50	10.50
6	13½x16½.....	16.00	11.00

**Above prices are for Black Bowls and Polished Straps.**

**For Half Polished Bowls, add \$1.00 per doz.**

**For Full Polished Bowls, add 2.00 per doz.**

BUCKEYE COAL AND COKE FORKS



Fig. 183

Each one of our Coal and Coke Forks is forged from a solid piece of high carbon tool steel, oil tempered. Only the best second-growth white ash is used in the handles. Stock forks are equipped with 30" wood "D" Handles. We can furnish these with Iron "D" Handles at no extra charge, if preferred.

No. of Tines	Length	Width	Space Between Tines	Price per Doz.
8	13½	11½	1¼	\$20.00
9	16	13	1¼	22.00
10	17	14	1¼	24.00
12	17	18	1¼	28.00
14	17	20½	1¼	33.00
16	17	19½	1	40.00
18	17	20½	¾	48.00

12 and 14 Tine Forks can be furnished with 1-inch space between Tines

16	"	"	"	"	"	¾	"	"	"	"
18	"	"	"	"	"	⅝	"	"	"	"

BUCKEYE SPRUE FORKS



Fig. 184

Buckeye Sprue Forks for use on hot gates and castings, where intense heat would ruin a shovel.

Tines are heavy, flat shaped.

Price per doz., \$20.00

## Charging Baskets

### CORRUGATED GALVANIZED STEEL

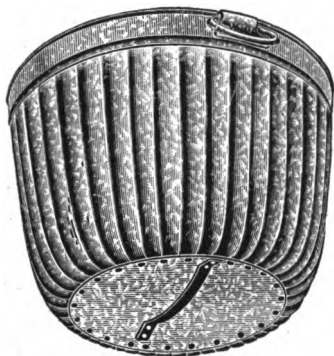


Fig. 185

This basket is very solid, being made for hard service, and will far outlast baskets of any similar other make. The bottom is double, fastened with rivets securely set all the way around, and in addition is soldered inside and out. All rivets are headed by hand, therefore are sure to hold.

This basket will outlast bamboo, rattan, ash, or oak baskets several times, and will be found much cleaner to handle. Rope or iron handles.

No.	Bushels	Diameter	Depth	Weight	Price Per Doz.
1	1	17 inch	11½ in.	6 lbs.	\$29.00
1½	1½	19 inch	13 inch	7 lbs.	35.00
2	2	20 inch	16 inch	8 lbs.	41.00
3	3	23 inch	17 inch	10 lbs.	52.50

### GALVANIZED WIRE COKE BASKETS

Our Wire Coke Baskets are galvanized after being made, to prevent rusting. Made of heavy crimped wire and firmly put together, making them strong, durable, and almost indestructible.

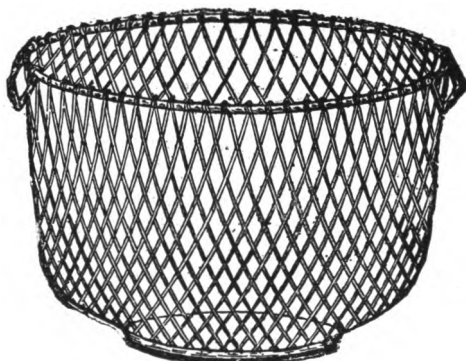


Fig. 186

Size	Capacity	Price Each
A	1 bushel, or 60 pounds	\$3.50
B	1½ bushels, or 90 pounds	3.75
C	2 bushels, or 120 pounds	4.00

## Extra Heavy Galvanized Sprinkling Cans



Fig. 187

This cut shows our extra heavy Galvanized Sprinkling Can, made of 22-gauge material, with rigid bail and reinforced bottom. Wired at top and bottom. Spout is extra well protected, in that it has a one piece strip of galvanized iron running around it, which is both riveted and soldered to body of can. We furnish this can with wood bottoms, when specified. Made in four sizes, as follows:

Quarts	Regular, Per Doz.	Wood Bottom, Per Doz.
12	\$20.50	\$23.50
14	21.00	24.00
16	23.25	26.25
20	28.00	31.00

## BUCKEYE GALVANIZED STEEL PAILS

Try us. Be convinced that these pails are the best on the market to-day for foundry use. Made of 24-gauge sheet steel, then galvanized. Following sizes in stock:

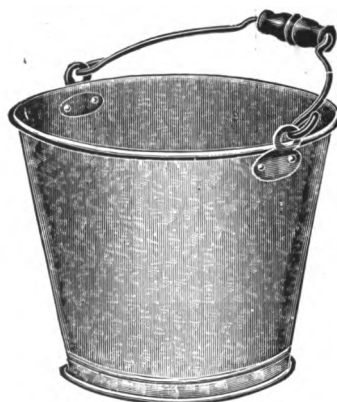


Fig. 188

	Per Doz.
10 quarts.....	\$10.25
12 quarts.....	11.00
14 quarts.....	11.75

## J. I. C. FOUNDRY PAILS



Fig. 189

This Foundry Pail is made of best lumber obtainable in oak or white cedar. Hoops are made of heavy flat steel. These pails are trimmed with patent steel ears, which run entire length of pail and lap underneath, where it reinforces the flush bottom and tightly clamps each hoop in its position. The J. I. C. pail was especially designed for foundry use, and no plant is complete without them.

Price per dozen, \$12.00.

## Molders' Bench Rammers

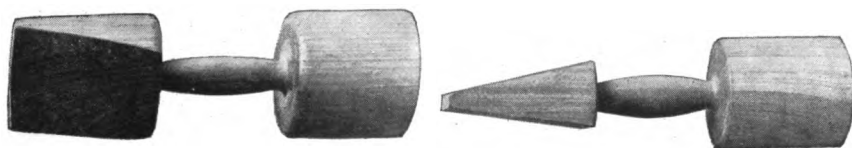


Fig. 190

Made of the best selected maple. Will not check or split.

3½" diameter butt, 14" long.....	Price per pair, \$0.80
4 " diameter butt, 14" long.....	Price per pair, 1.00

Other sizes made to order.

## FLOOR RAMMERS



Fig. 191

Floor Rammers, with hickory handles 42 inches long, per doz.....	\$18.00
Floor Rammers with pipe handles, per doz.....	24.00
Iron Butts and Peens, per pair.....	1.00

Pipe Handle Rammers furnished either 48 or 54 inches over all.



## FLOOR RAMMER HANDLES



Fig. 192

Made of good quality kiln-dried forest growth hickory, nicely turned and smoothly sanded.

1 1/8 inches in diameter, 42 inches long, per doz..... \$2.00

## RUBBER-TIPPED FOUNDRY RAMMERS



Fig. 193

The above illustration shows our Rubber Tipped Floor Rammer Peen. These are especially adapted for particular classes of work, as they will not mar the patterns. The tip is held in the malleable peen by two small pins, and can be replaced when worn out at very little trouble or expense.

Malleable Peen with rubber tip, complete, each..... \$1.50  
Rubber Tips only, per doz..... 4.00

## Buckeye Pneumatic Tools

### PNEUMATIC FLOOR AND BENCH RAMMERS

These Rammers will do faster and better work than is possible with the ordinary ramming bar. They develop high speed and deliver powerful blows without vibration.

These Rammers are economical in maintenance, as they have less parts and use less air than any tools of similar design.

Furnished with round or flat rod, as desired. These tools are guaranteed against defects for one year.



Fig. 194  
Floor  
Rammer

Prices on application



Fig. 195  
Bench  
Rammer

## VALVELESS CHIPPING HAMMER

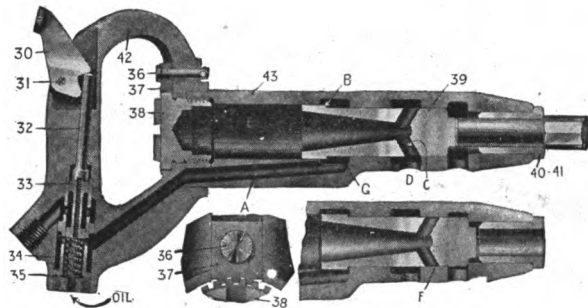


Fig. 196

### The Hammer with One Moving Part

Our Valveless Chipping Hammer will not only reduce your repair account, but uses less air, and is always on the job.

The piston stops running when hammer is not held firmly against the chisel, thus preventing injury by striking the cylinder instead of the chisel. Made in six sizes, for light and medium chipping. Guaranteed against defects for one year.

## HEAVY DUTY CHIPPING HAMMERS

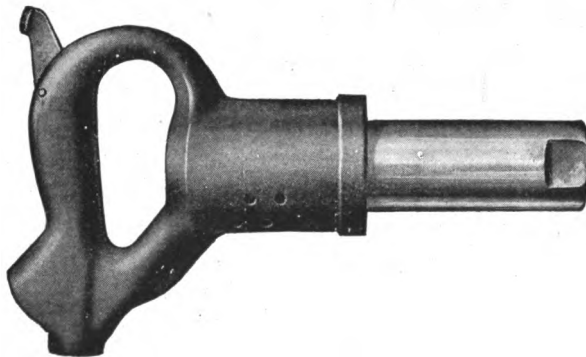


Fig. 197

This hammer is made in sizes covering a range from general to the very heaviest chipping, and driving up to  $\frac{5}{8}$ -inch hot rivets. It consumes no more air than other valved hammers, and the cost of upkeep is from 10 to 20 per cent less. This is due to the fact that it is a "Heavy Duty" hammer, substantially built for the most severe service.

The cylinder is heat-treated, hardened, and ground, and the handle is forged steel, heat-treated. Guaranteed for one year against defects.

**Special information and prices on application**

## Molders' Bellows

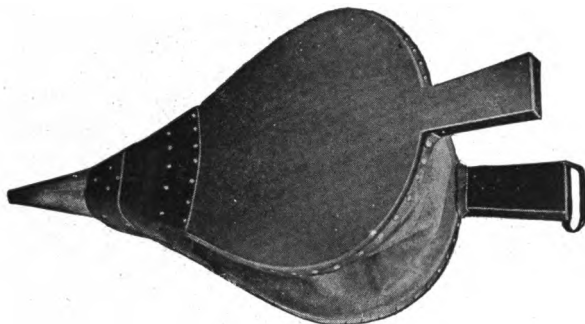


Fig. 198

In the manufacture of these Regular Bellows, only the best materials of their kind obtainable are used. Those parts which are most likely to wear are reinforced, which lengthens the life. We believe you will get more service, dollar for dollar, out of this bellows than any other bellows of similar construction. Made in two grades and three sizes.

	9-in. Per Doz.	10-in. Per Doz.	12-in. Per Doz.
Sheepskin.....	\$13.50	\$15.00	\$20.00
Calfskin.....	20.00	24.00	30.00

## ROUND NOSE BENCH BELLOW

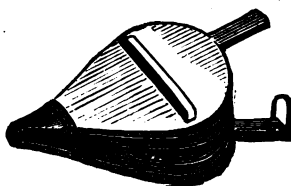


Fig. 199

This Bellows is manufactured of the same high-grade materials and best workmanship as the regular bellows shown above. It is more suitable, however, in certain classes of work. Made in one grade and two sizes.

	9-inch, Per Doz.	10-inch, Per Doz.
Sheepskin.....	\$16.00	\$20.00

### KANSAS CYCLONE BELLOWS



Fig. 200

Kansas Cyclone Bellows are made with Malleable Iron Spout and Steel Hinge, extra selected leathers, and kiln-dried wood.

Cyclone Bellows produces the longest and strongest blast with the least effort on the part of the molder. It is undoubtedly the best bellows of its kind on the market to-day. It has no equal. Furnished in two grades and sizes, as follows:

	9-inch, Per Doz.	10-inch, Per Doz.
Sheepskin.....	\$17.50	\$20.00
Calfskin.....	20.00	22.50

### IMPROVED CYCLONE BELLOWS

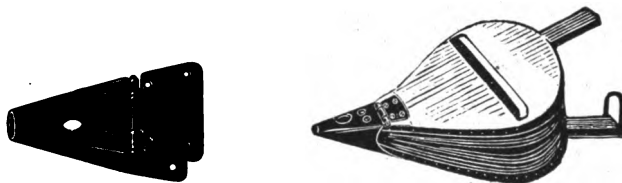


Fig. 201

Something entirely new in a Cyclone Bellows. Has patent one-piece steel spout and hinge combined. The only bellows with this feature made to-day. Like all of the other bellows, the high standard of material and workmanship prevails. While this bellows is a trifle higher in cost than our regular grades, it is recommended as the most economical in the long-run. Made in two grades and sizes.

	9-inch, Per Doz.	10-inch, Per Doz.
Sheepskin.....	\$17.00	\$19.50
Calfskin.....	19.50	22.00

## 202 STOVE MOLDERS' SPECIAL BELLOWS

Our Stove Molder Special Bellows are designed for stove molders especially. Are slightly longer than the regular bellows, and will open farther, thereby giving it longer and stronger blast. Are extra well made, using only the very best of selected leather and kiln-dried wood. Furnished with galvanized spout only.

Calfskin, 10-inch, per doz..... \$25.00

## MOLDERS' FACING AND SPRAYING BELLOWS

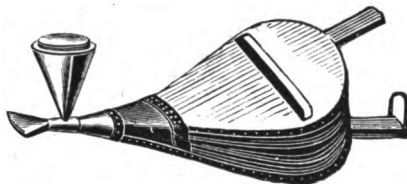


Fig. 203

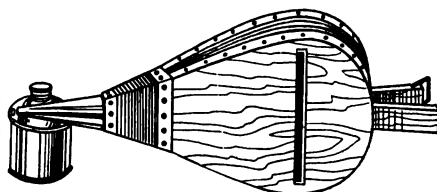


Fig. 204

Facing Bellows for applying facings to molds that cannot be reached by hand or brush.

Spraying Bellows are used for spraying molds with water, kerosene, etc., particularly so where there is not enough force with mouth spray.

Price each, \$4.00.

## BLOW GUN



Fig. 205

The construction of this Blow or Air Gun is simple, efficient, and durable, not liable to get out of order, and is cast of the best steam bronze. Once installed, you will never be without it. It will save its cost many times over.

These Air Guns are supplied with Hose Nipple, are furnished with Screw Tip, the hole of which can be made any size within the limit of the thread.

Size	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"
Price each.....	\$2.25	\$2.50	\$2.85	\$3.75	\$4.75	\$6.00
Size thread for screw tip.....	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{8}$ "

### AIR NOZZLE



Fig. 206

This device is used in foundries, machine shops, etc., wherever compressed air is available. A  $\frac{1}{2}$ -inch pneumatic hose is forced over the shank and held by the usual means. The valve is easily handled and controlled, and the desired volume of air can be obtained by simply pressing upon the button on top of body.

The above can be used to equal advantage by bench and machine hands for removing chips and filings from places where a brush is not effective. For cleaning molds, etc., in foundries, it is decidedly more convenient and economical than the usual hand bellows.

Made in one size only. Price each, \$2.00.

## Extra Heavy Molders' Riddles

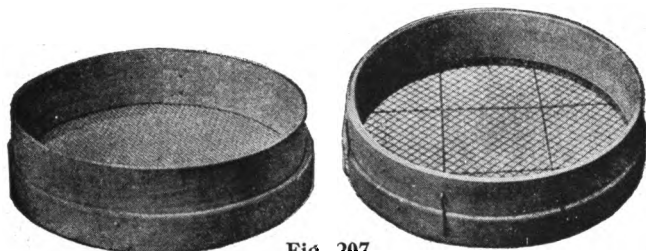


Fig. 207

Made in galvanized or brass wire, with four cross wires.

### GALVANIZED RIDDLES

Rim of smooth, tough wood, large-headed nails used to prevent splitting and tearing. Braced with four cross wires to prevent sagging. Wire is galvanized after woven, and is of a heavier gauge than regularly used. Furnished two- to ten-mesh.

### BRASS RIDDLES

Same construction as our Galvanized Riddles, except that a heavy gauge of brass wire is used. Furnished two- to sixteen-mesh.

Diameter	Galvanized	Brass
16-inch, per dozen	\$10.00	\$18.00
18-inch, per dozen	12.00	20.00
20-inch, per dozen	15.00	22.00

### BRASS PARTING SAND RIDDLES

18-inch diameter, from 16- to 30-mesh. Price on application.

## EXTRA HEAVY COAL OR COKE RIDDLE

Made 18 inches in diameter. Strongly made, and intended for rough usage. Furnished in the following sizes:

$\frac{3}{4}$ -inch,  $\frac{7}{8}$ -inch, 1-inch,  $1\frac{1}{4}$ -inch, and  $1\frac{1}{2}$ -inch.  
Price per doz ..... \$15.00

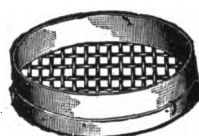


Fig. 208

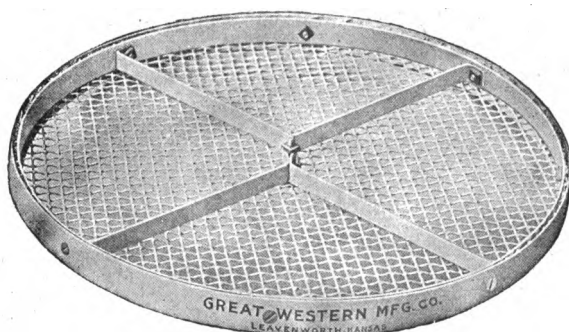


Fig. 209

## Renewable Bottom Sieves

For Combs Gyratory Riddles

The pictures tell the story

Rims and cross-bars of heavy galvanized steel. Bottoms are extra

heavy, galvanized after weaving wire cloth, put together with bolts having brass nuts to prevent rusting tight.

These Riddles are furnished in two sizes—20-inch for type "V," and 24-inch for type "CR."

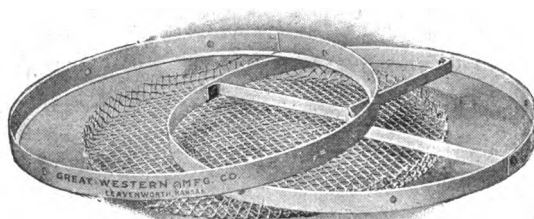


Fig. 210

	Complete	Rims Only	Cloth Bottoms Only
20-inch.....	\$3.25	\$2.25	\$1.00
24-inch.....	3.75	2.50	1.25

## 211 SQUARE RENEWABLE BOTTOM SIEVE

For type "CS" machine we furnish a 24-inch square sieve with a metal frame. The wire cloth in these is renewable.

	Complete	Rim Only	Cloth Bottoms Only
Prices.....	\$4.85	\$3.25	\$1.60

The frames on renewable bottom sieves wear indefinitely. Extra wire bottoms cost about 30 per cent less than wood-rim sieves.

## ALL STEEL FOUNDRY RIDDLE



Fig. 212

An all-steel light-weight riddle that is easy to handle, with a cloth that won't pull out or sag, with rim that cannot crack or splinter.

Size	Diameter Outside	Diameter of Riddling Surface	Price Per Doz.
A	20 inches	19¼ inches	\$24.00
B	18¾ inches	18 inches	16.80
C	17½ inches	16¾ inches	15.60
D	15½ inches	14¾ inches	14.50

Made in galvanized cloth only.

Size "A" is made especially for Combs Gyrotory Electric Riddle.

## EXTRA HEAVY WIRE CLOTH

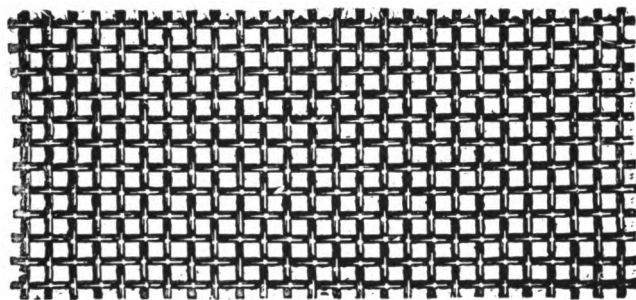


Fig. 213

We can furnish galvanized, brass, copper, or steel wire cloth in the following widths: 24, 30, 36, and 48 inch in any mesh or size of wire or grade wanted.

Prices on application

## Molders' Draw Sticks



Fig. 214

Made of kiln-dried hardwood, nicely finished

13 inches long. Price per 100..... \$6.00



## 215 STRAIGHT TAPER SPRUE STICKS

Made of dry selected hardwood stock. Diameter at top,  $1\frac{1}{2}$  inches; diameter at bottom,  $\frac{1}{2}$  inch. Furnished in the following lengths:

6 inches long.	Price per 100	\$4.00
7 inches long.	Price per 100	4.75
8 inches long.	Price per 100	5.10
9 inches long.	Price per 100	5.50
10 inches long.	Price per 100	6.00

## BELL TOP SPRUES



Fig. 216

Only dry selected stock used in our Bell Top Sprues. Diameter at top,  $1\frac{1}{2}$  inches; diameter at bottom,  $\frac{1}{2}$  inch. Can be supplied in the following lengths.

$2\frac{1}{2}$ inches long.	Price per 100	\$1.50
3 inches long.	Price per 100	1.75
$3\frac{1}{2}$ inches long.	Price per 100	1.90
4 inches long.	Price per 100	2.35
5 inches long.	Price per 100	2.60

Larger sizes to order.

## 217 GATE STICKS, STRAIGHT AND TAPERED

Furnished in various lengths, tapers, and diameters, as specified. Price on application.

## HARDWOOD WEDGES

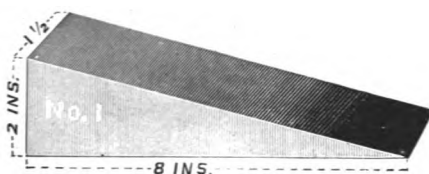


Fig. 218 Per 100

No. 1 Wedge, 600 in barrel .....\$1.00

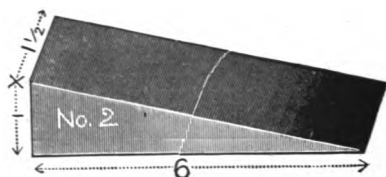


Fig. 219 Per 100

No. 2 Wedge, 900 in barrel .....\$0.65

## 220 METAL WORKERS' CRAYONS

### For Marking Iron Patterns or Castings

The following sizes in stock:  $\frac{1}{4} \times \frac{1}{4} \times 5$  and  $\frac{1}{4} \times \frac{1}{2} \times 5$ . Price, \$3.00 per Gross. Packed in 1-gross boxes.

# Hardwood Foundry Mallets

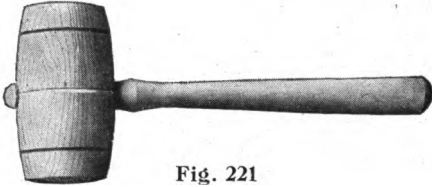


Fig. 221

These mallets are made of selected second-growth hickory. Following sizes in stock:

	Price Per Doz.
2 x 4 inches.....	\$2.00
2 x 4½ inches.....	2.00
2¾x 5 inches.....	2.50
3 x 4½ inches.....	3.00
3 x 6 inches.....	3.50

## HEAVY FOUNDRY MAULS

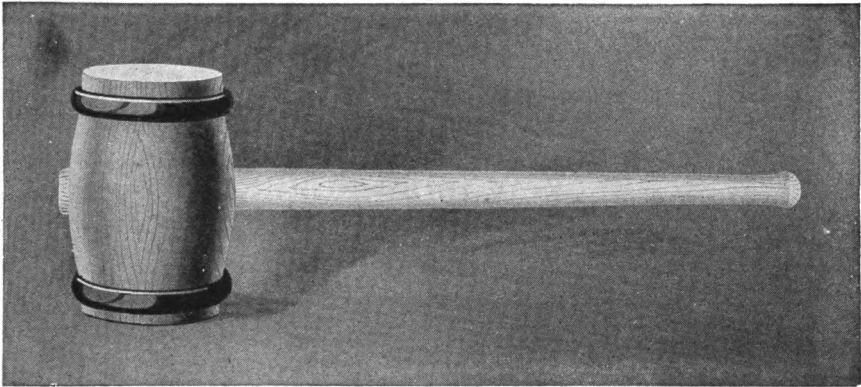


Fig. 222

Our mauls are made of second-growth hickory, with a 36-inch handle, with bulge on outer end, the maul being bored with two sized holes, the outer one being the largest, making it impossible for the maul to slip off. We also furnish with each maul one set of hand-welded ¾x1¼-inch iron rings. We claim our mauls are superior to any on the market. Can also be furnished without iron bands, when desired. Mauls with bands will be furnished unless otherwise specified. Made in the following sizes:

	Each
6 x 9 inches, price with bands.....	\$3.00
7 x10 inches, price with bands.....	3.50
6 x 9 inches, price without bands.....	2.00
7 x10 inches, price without bands.....	2.50

223

## MAUL HANDLES

### PRICE LIST OF MAUL HANDLES

Length, inches.....	24	26-28	30-32	34-36	38	40	42
No. 1, per dozen.....	\$1.90	\$2.20	\$2.50	\$3.00	\$3.25	\$3.40	\$3.75

## RAWHIDE MALLETS

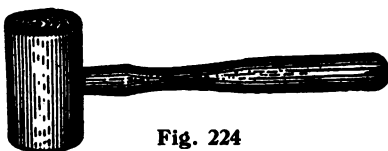


Fig. 224

### Solid Rawhide Heads, Hardwood Handles

It is especially adapted in stove-plate work and other light work. A practically indestructible mallet, made entirely of rawhide.

### PRICE LIST

No.	Diameter	Length	Weight	Price Per Doz.
0	1 inch	2 3/8 inches	2 ounces.....	\$4.32
1	1 1/4 inches	3 1/8 inches	4 ounces.....	5.52
2	1 1/2 inches	3 3/4 inches	6 ounces.....	6.60
3	1 3/4 inches	3 3/8 inches	8 ounces.....	7.68
4	2 inches	3 1/2 inches	10 ounces.....	9.72
5	2 3/4 inches	4 1/4 inches	22 ounces.....	21.60
6	2 3/4 inches	4 3/4 inches	24 ounces.....	24.36

## HIDE FACED HAMMERS

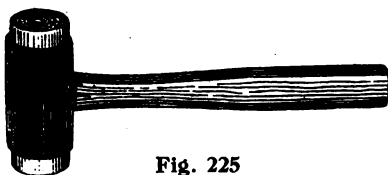


Fig. 225

Most satisfactory for machinists, engineers, brass workers, and all wishing to strike the hardest blow without injuring the most delicate surface. Where a heavy tool is required our hide-faced hammers are recommended. The construction is a malleable iron head with compressed rawhide faces. The metal part is practically indestructible, and new rawhide faces may be easily inserted.

No.	Diameter	Weight	Price Per Doz.	Extra Faces Per Doz. Pairs
0	1 inch	1/2 lb.....	\$10.80	\$3.36
1	1 1/4 inch	1 1/4 lb.....	12.60	3.60
2	1 1/2 inch	1 7/8 lb.....	16.08	4.32
3	1 3/4 inch	2 1/4 lb.....	19.20	5.52
4	2 inch	4 1/4 lb.....	27.84	7.68
5	2 3/4 inch	6 1/4 lb.....	39.96	10.92

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## LOADED RAWHIDE MALLETS

Made with Lead Core to Give Additional Weight

PRICE LIST				Price
No.	Diameter	Length	Weight	Per Doz.
7	1¼ inches	3 inches	8 ounces.....	\$6.60
8	1½ inches	3½ inches	12 ounces.....	7.56
9	1¾ inches	3¾ inches	18 ounces.....	8.76
10	2 inches	3½ inches	20 ounces.....	10.92
11	2¾ inches	4¼ inches	44 ounces.....	24.36



## RAWHIDE MAULS

Principally used in machine molding. Simple in construction and easily refilled with new rawhide when worn. New handles can be inserted at any time. Can be furnished with wood or leather handles.

Fig. 227

No.	Weight, lbs.	Wood Handles	Leather Handles	Refills
1	3	\$4.00 each	\$8.00 each	\$2.85 each
2	4	5.00 each	10.00 each	3.90 each
3	6	6.00 each	12.00 each	4.90 each
4	8	7.00 each	14.00 each	6.00 each
5	10	8.00 each	16.00 each	7.00 each
6	12	9.00 each	18.00 each	8.00 each

## RUBBER MALLETS

Our rubber mallets are made of an excellent grade of serviceable rubber designed especially for this purpose. The stock is of correct hardness, and the mallets are well made and nicely finished. This style of mallet is especially useful on patterns, as every rap vibrates the pattern.



Fig. 228

Size No.	Diameter, End	Length	Weight, Ounces	Price Per Doz.
00	1⅞ inches	3 inches	3½ .....	\$5.00
0	1¾ inches	2¾ inches	6¾ .....	6.00
1	2¼ inches	3 inches	11¾ .....	8.00
2	2¼ inches	3½ inches	14½ .....	8.50
3	2¼ inches	4 inches	18¼ .....	10.50
4	2½ inches	4⅞ inches	26¾ .....	15.00

## Wild Deer Blacking Sprayer



Fig. 229

The Wild Deer Blacking Sprayer blacks the cores much better than by hand, and in less time, distributing an even coating over the cores. Made of heavy copper, reinforced.

The large size holds five pints; the smaller size, one and a half pints. Complete outfit consists of sprayer, valve and eight feet of hose, or without hose and valve, if desired.

### PRICE COMPLETE

Large Size.....	\$10.00 each
Small Size.....	7.00 each

### SPRAY CAN

Made in either copper or tin. Diameter, 4½ in.; height, 2 in.; capacity, about 1 pint.

Copper.....	Price each, \$1.25
Tin.....	Price each, .75

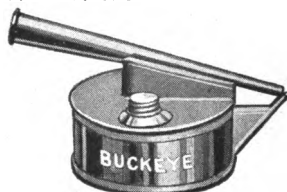


Fig. 230

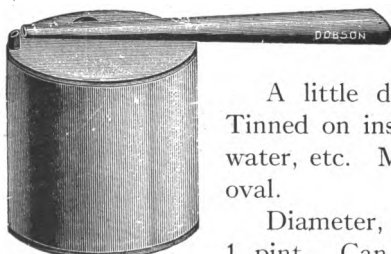


Fig. 231

### SPRAY CANS

A little different in shape from our Fig. 230. Tinned on inside to resist acids formed in molasses water, etc. Mouthpiece tinned on outside and made oval.

Diameter, 3 inches; height, 3 inches; capacity, 1 pint. Can be furnished in other sizes also.

Copper.....	Price each, \$1.25
Tin.....	Price each, .75

### BUCKEYE RUBBER BULB SPONGE

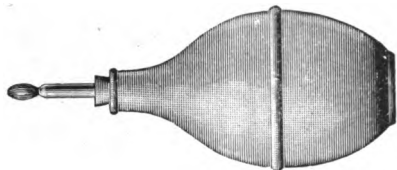


Fig. 232

This Bulb, which holds enough water for a day's use, is made of a special high-grade rubber. The stem is fitted with an adjustable brass wrapped camel hair brush.

Made in three sizes

No. 1 .....	Price each, \$1.50
No. 2 .....	Price each, 1.25
No. 3 .....	Price each, .90

### PISTOL TYPE SPRAYER

This Pistol Sprayer takes the place of the Swab, Brush, and Spray Can for blacking molds. There is no limit to the amount of work it will do. It is limited only by the size of pail

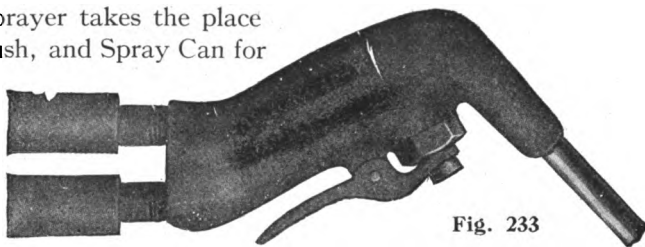


Fig. 233

or barrel. Blacking put on molds with this sprayer stays on, and peels the casting better as the blacking is driven into the pores of the sand or loam by air pressure. Heretofore inaccessible pockets and other parts of the mold are easily sprayed by the pistol. It will work at any angle. One hand does all the work. There are no valves to keep under constant control. Just pull the trigger.

Having trigger control, it is very economical of air, and is the most compactly and scientifically designed ejector ever made for blacking purposes. It is also used for silica wash, oil, or water; also for painting, whitewashing, and sand blasting brass and small castings. Indispensable in up-to-date shops where cleanliness and quality, speed and efficiency are desired. The Pistol Sprayer never reaches the junk pile. This is worth remembering when purchasing or comparing with others.

### GUARANTEE

It is thoroughly well made of bronze parts and cannot get out of order. It will last a lifetime. This Pistol Sprayer is the last word in speed and efficiency in blacking cores and molds.

Sizes,  $\frac{1}{8}$ -inch,  $\frac{1}{4}$ -inch,  $\frac{3}{8}$ -inch, and  $\frac{1}{2}$ -inch. Designate size when ordering.

$\frac{1}{8}$ -inch and $\frac{1}{4}$ -inch sizes .....	\$12.00
$\frac{3}{8}$ -inch size .....	15.00
$\frac{1}{2}$ -inch size .....	18.00

Also suitable for sand blast.

### THE BUCKEYE BLACKING SWAB SPRAYER

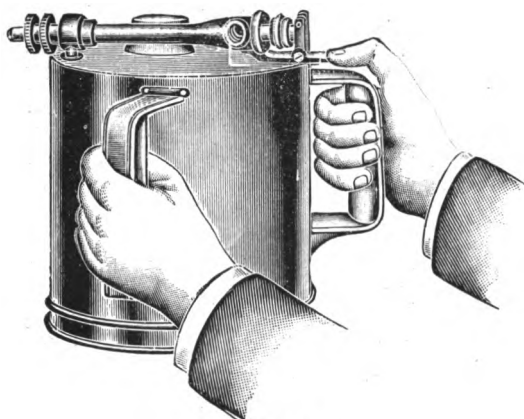


Fig. 234

By means of this machine compressed air is used to spray liquid facing on dry sand molds; also for spraying oil or blacking on cores. The blacking is thrown with considerable force into the pores of the sand and also into the pockets and corners which would otherwise be missed with the ordinary swab. It is applied with great uniformity.

Driving the blacking into the pores of the sand prevents the iron from burning and facilitates slicking.

Size No.	Capacity	Price
1	1½-quart.....	\$12.00
2	3 -quart.....	15.00
3	5 -quart.....	24.00

### THE BUCKEYE SWAB GUN

Any ordinary bucket can be used to hold the material. The parts supplied are: The Atomizer and Collector which goes in the bottom of the bucket, 20 feet armored hose, couplings, and the sprayer nozzle with valve. Outfit does not include bucket for spraying liquid.

Price.....\$15.00



589

**"SAFETY FIRST"**  
**Albex Eye Protector**

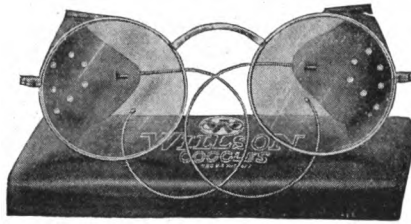


Fig. 236

This Eye Protector is made with ventilated Leather Side Guards, flexible cable temples, adjustable brace bridge, and 1 $\frac{7}{8}$ -inch round lenses, amber, clear, and Cobalt blue. The brace bridge fits goggle snug to any face, and permits ordinary glasses to be worn underneath. The eyes are protected from all points. The lenses may be replaced. Can be furnished with Wire Screen Side Guards instead of leather, if desired.

- |  |                        |
|--|------------------------|
| No. 1—Clear White, for Chippers.....                   | Price per doz., \$9.00 |
| No. 2—Amber, for Cupola Tenders, etc.....              | Price per doz., 9.00   |
| No. 3—Cobalt Blue, for Furnace Operators.....          | Price per doz., 9.00   |
| No. 4—Double Thickness, Clear White, for Chippers..... | Price per doz., 10.00  |



Fig. 237

**AUTOMATIC RUBBER RESPIRATOR**

Our Rubber Respirator has a perfect filter device, and no sticking valve disc.

It has large capacity, and will keep out dust, smoke, fumes, and gases, and protects the exposed workman in any occupation.

It is made of soft white rubber, is easily kept clean, and bends perfectly to fit any face.

Price per dozen, \$24.00.

**GAS-TIGHT RUBBER GOGGLES**

Are made of a single piece of pure rubber, and are waterproof and sanitary. Many different sizes and shapes of lenses can be used, which are replaceable in a moment, and are held constrictively. Are fitted with mica lenses for firemen's use. Clear white glass lenses furnished unless otherwise specified.

Price per dozen, \$18.00.



Fig. 238



**"SAFETY FIRST"**

**Buckeye Sand Blast Helmet**



**Fig. 239**

We furnish two designs of Helmets—stiff frame, as shown, and a soft pattern. Both designs are made of strong duck cloth. The stiff-frame pattern has a ventilator at the top, is provided with clips, so that the brass gauze can be quickly replaced when worn.

The soft pattern is made entirely of strong duck cloth. The eyepiece is a strong leather casing into which the celluloid can be instantly inserted.

**Stiff frame pattern.....\$9.00 each**  
**Soft pattern..... 6.00 each**

**SAFETY SAND BLAST  
HELMET**

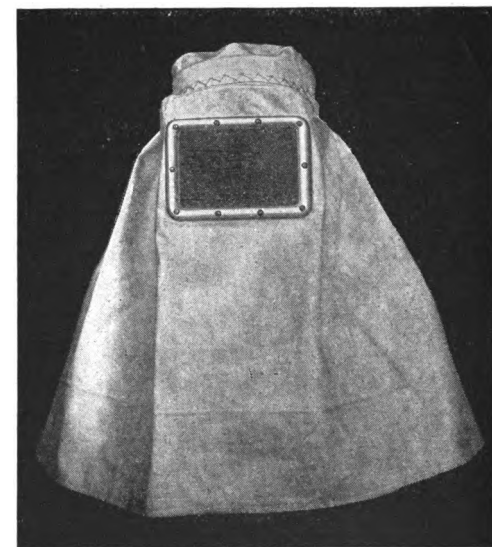
This helmet is strongly and durably made of 8-ounce duck, in style shown in cut, the rim projecting well beyond the operator's face, enabling him to turn his head freely. The curtain extends well over the shoulders, excluding the sand and dust.

The eyepiece is made of very fine brass wire netting, which does not impair the vision, and is not affected or dimmed by the flying sand or by dampness, as is glass.

The wire netting is held in place by an aluminum frame, which can be removed with very little work by loosening screws and new netting be replaced from time to time.

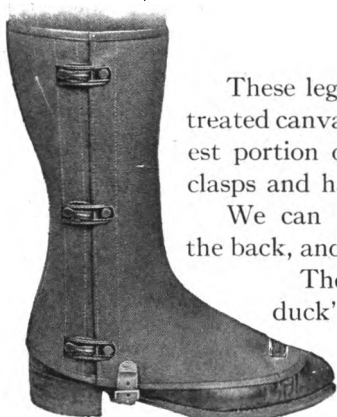
The front of the curtain is reinforced, giving it double strength, and the opening is finished, so as not to ravel or tear out.

**Price each, \$6.00.**



**Fig. 240**

## "SAFETY FIRST" Foundry Leggins



These leggins are made of finely-woven and specially treated canvas, with the foot extension covering the greatest portion of the shoe, fastened with three metal spring clasps and have a strong strap passing under the shoe.

We can furnish a leggin which closes with a lap in the back, and which covers the entire shoe.

These leggins shed molten metal like water from a duck's back, and are simple, safe, and serviceable.

Price per pair, with metal spring clasp... **\$1.00**

Price per pair, with lap in back..... **2.00**

**Fig. 241**

**242**

### SAND BLAST GLOVES

Our Sand Blast Gloves are made for this particular purpose, of chrome leather with a 4-inch cuff. The palm is reinforced with steel ribbons and extra strip of tough leather. All seams are sewed with steel thread, making it absolutely rip-proof. While this glove is heavily reinforced, it is not stiff.

Price per pair, **\$2.50.**

**243**

### ASBESTOS GLOVES

Our Asbestos Gloves will give ample protection to the hands, and makes easy the handling of heated articles, with protection against acids and molten metal. They are treated by special process to give them added life and textile strength. Furnished with or without gauntlet.

Price per pair, **\$2.50**

### MOLDERS' SHOES

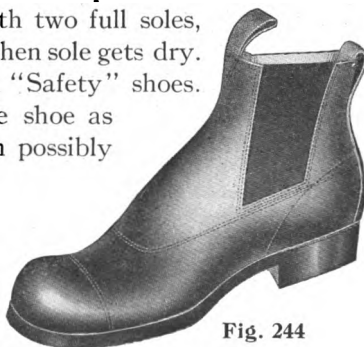
We can supply two kinds of molders' shoes—plain toe and inside box toe. All our molders' shoes are made with two full soles, so as to prevent breaking across the ball when sole gets dry.

This shoe is positively the last word in "Safety" shoes. The Goodyear Welt fastening makes the shoe as comfortable and flexible as any shoe can possibly be made.

The inside box toe is tested to 200 pounds. Leather innersoles, horn fiber counters.

**Plain toe, in black or tan, per pair.....\$6.00**

**Inside box toe, in black only, per pair.. 7.00**



**Fig. 244**

Foundry Torches



Fig. 245



Fig. 246

Above torches are especially adapted to foundries and machine shops. Made of heavy sheet steel brazed with hard brass spelter solder. Are practically indestructible, and guaranteed not to leak. Made in two sizes only—pint and quart.

	Pint Size	Quart Size
Fig. 245.....	\$9.00 per doz.	\$10.00 per doz.
Fig. 246.....	9.00 per doz.	10.00 per doz.
Fig. 246, 2-Burner, Quart size only.....		12.00 per doz.

WALL TORCH

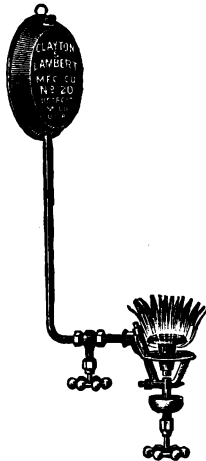


Fig. 247

The No. 20 is a better torch of its kind than is usually offered, and its practical operation and durability proves our claim. Heavy tin is used in the tank construction. The burner produces a light equal to eight or ten gas lights. The expense of running approximates about one cent per hour. The burners are heavier, better made, and superior in quality to any other. Stuffing boxes are fitted to each burner and valve, thus making them durable and preventing leaks. Can also be supplied with double burner. Capacity, 6 quarts.

Price, single burner.....	\$2.50 each
Price, double burner.....	5.00 each

248

TORCH WICKS

Round braided torch wicks can be supplied in two forms: in cartons of one dozen, each 11 inches long, and in coils weighing about 12 lbs. each.

Price in Cartons.....	Per dozen, 75 cents
Price in Coils.....	Per pound, 75 cents

## Wrought Iron Chaplets With Forged Heads

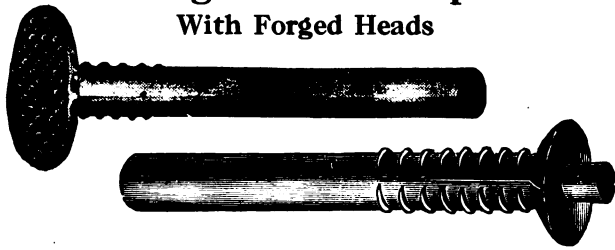


Fig. 249

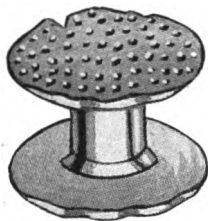
### WROUGHT IRON CHAPLET STEMS PRICE PER HUNDRED

Diam. of Stem...	1/8-3/16 1/4	5/16-3/8	1/2	5/8	3/4	7/8	1
Diam. of Head...	1/2-11/16 13/16	1 1/16 1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2
Length, Inches							
3 .....	\$3.00	\$5.50	\$7.90	\$9.00	\$11.00	\$16.00	\$21.00
4 .....	3.30	6.10	8.90	10.70	13.30	19.30	27.00
5 .....	3.60	6.70	9.90	12.40	15.60	22.60	33.00
6 .....	3.90	7.30	10.90	14.10	17.90	25.90	39.00
7 .....	4.20	7.90	11.90	15.80	20.20	29.20	45.00
8 .....	4.50	8.50	12.90	17.50	22.50	32.50	51.00
9 .....	4.80	9.10	13.90	19.20	24.80	35.80	57.00
10 .....	5.10	9.70	14.90	20.90	27.10	39.10	63.00
11 .....	5.40	10.30	15.90	22.60	29.40	42.40	69.00
12 .....	5.70	10.90	16.90	24.30	31.70	45.70	75.00
13 .....	6.00	11.50	17.90	26.00	34.00	49.00	81.00
14 .....	6.30	12.10	18.90	27.70	36.30	52.30	87.00
15 .....	6.60	12.70	19.90	29.40	38.60	55.60	93.00
16 .....	6.90	13.30	20.90	31.10	40.90	58.90	99.00
17 .....	7.20	13.90	21.90	32.80	43.20	62.20	105.00
18 .....	7.50	14.50	22.90	34.50	45.50	65.50	111.00
19 .....	7.80	15.10	23.90	36.20	47.80	68.80	117.00
20 .....	8.10	15.70	24.90	37.90	50.10	72.10	123.00
21 .....	8.40	16.30	25.90	39.60	52.40	75.40	129.00
22 .....	8.70	16.90	26.90	41.30	54.70	78.70	135.00
23 .....	9.00	17.50	27.90	43.00	57.00	82.00	141.00
24 .....	9.30	18.10	28.90	44.70	59.30	85.30	147.00
Net Price for Pointing, per 100.	\$0.40	\$0.75	\$1.00	\$1.25	\$1.50	\$1.75	\$2.00

**DOUBLE HEAD CHAPLETS**

**With Forged Heads**

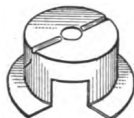
**PRICE PER HUNDRED**



**Fig. 250**

Length, Inches	Diam. Stem.		
	$\frac{3}{8}$ -Inch	$\frac{1}{2}$ -Inch	$\frac{5}{8}$ -Inch
$\frac{5}{8}$ .....	<b>\$9.00</b>		
$\frac{3}{4}$ .....	<b>9.00</b>	<b>13.00</b>	<b>\$15.00</b>
$\frac{7}{8}$ .....	<b>9.00</b>	<b>13.00</b>	<b>15.00</b>
<b>1</b> .....	<b>9.00</b>	<b>13.00</b>	<b>15.00</b>
$1\frac{1}{8}$ .....	<b>10.00</b>	<b>14.00</b>	<b>16.00</b>
$1\frac{1}{4}$ .....	<b>10.00</b>	<b>15.00</b>	<b>17.00</b>
$1\frac{3}{8}$ .....	<b>10.00</b>	<b>16.00</b>	<b>18.00</b>
$1\frac{1}{2}$ .....	<b>10.00</b>	<b>17.00</b>	<b>20.00</b>
$1\frac{3}{4}$ .....	<b>11.00</b>	<b>18.00</b>	<b>22.00</b>
<b>2</b> .....	<b>11.00</b>	<b>20.00</b>	<b>24.00</b>
$2\frac{1}{4}$ .....	<b>11.00</b>	<b>22.00</b>	<b>26.00</b>
$2\frac{1}{2}$ .....	<b>11.00</b>	<b>24.00</b>	<b>28.00</b>
$2\frac{3}{4}$ .....		<b>26.00</b>	<b>30.00</b>
<b>3</b> .....		<b>28.00</b>	<b>32.00</b>
$3\frac{1}{4}$ .....		<b>30.00</b>	<b>34.00</b>
$3\frac{1}{2}$ .....		<b>32.00</b>	<b>36.00</b>

**TIN SHELL OR FERRULE CHAPLETS**



**Fig. 251**

$\frac{1}{8}$ , 3/16, $\frac{1}{4}$ , 5/16 .....	<b>\$0.60 per 100</b>
$\frac{3}{8}$ , 7/16 .....	<b>.70 per 100</b>
$\frac{1}{2}$ .....	<b>.80 per 100</b>
$\frac{5}{8}$ .....	<b>.90 per 100</b>
$\frac{3}{4}$ .....	<b>1.00 per 100</b>
$\frac{7}{8}$ .....	<b>1.10 per 100</b>
<b>1</b> .....	<b>1.20 per 100</b>
$1\frac{1}{8}$ .....	<b>1.30 per 100</b>
$1\frac{1}{4}$ .....	<b>1.40 per 100</b>
$1\frac{3}{8}$ .....	<b>1.50 per 100</b>
$1\frac{1}{2}$ .....	<b>1.60 per 100</b>

**252**

**ROUND AND SQUARE HEAD CHAPLETS**

**3-16 Diameter Stem**

**5/16, 3/8, 1/2, 5/8, 3/4, 7/8, and 1 inch long, all sizes, \$3.00 per 100**

WROUGHT IRON CHAPLET STEMS

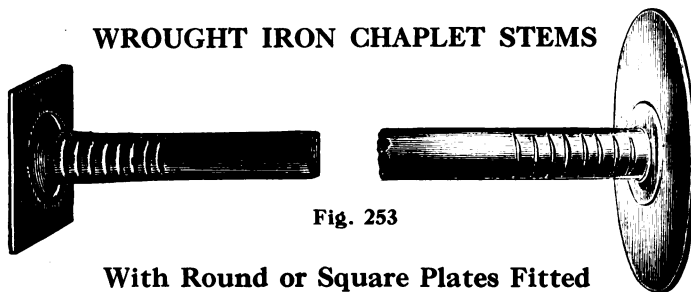
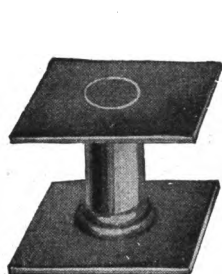


Fig. 253

With Round or Square Plates Fitted

PRICE PER HUNDRED

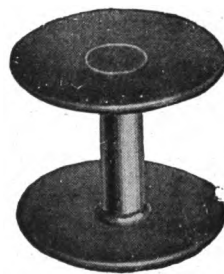
Diam. Stem . . . . .	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1
Round Plate . . . . .	1	1¼	1½	1¾	2	2¼	2½	2½	3
Square Plate . . . . .	1	1¼	1½	1½	2	2¼	2½	2½	3
Thickness of Head, Ga. & in.	18	16	16		1/8	1/8	3/16	3/16	3/16
Length, Inches									
3 . . . . .	\$5.70		\$7.90		\$11.40		\$17.50		\$28.90
4 . . . . .	6.00		8.80		12.80		19.70		31.90
5 . . . . .	6.30		9.70		14.20		21.90		34.90
6 . . . . .	6.60		10.60		15.60		24.10		37.90
7 . . . . .	6.90		11.50		17.00		26.30		40.90
8 . . . . .	7.20		12.40		18.40		28.50		43.90
9 . . . . .	7.50		13.30		19.80		30.70		46.90
10 . . . . .	7.80		14.20		21.20		32.90		49.90
11 . . . . .	8.10		15.10		22.60		35.10		52.90
12 . . . . .	8.40		16.00		24.00		37.30		55.90
13 . . . . .	8.70		16.90		25.40		39.50		58.90
14 . . . . .	9.00		17.80		26.80		41.70		61.90
15 . . . . .	9.30		18.70		28.20		43.90		64.90
16 . . . . .	9.60		19.60		29.60		46.10		67.90
17 . . . . .	9.90		20.50		31.00		48.30		70.90
18 . . . . .	10.20		21.40		32.40		50.50		73.90
19 . . . . .	10.50		22.30		33.80		52.70		76.90
20 . . . . .	10.80		23.20		35.20		54.90		79.90
21 . . . . .	11.10		24.10		36.60		57.10		82.90
22 . . . . .	11.40		25.00		38.00		59.30		85.90
23 . . . . .	11.70		25.90		39.40		61.50		88.90
24 . . . . .	12.00		26.80		40.80		63.70		91.90
Net Price for Curving Plates . . .	\$0.35		\$0.60		\$0.75		\$0.90		\$1.25
									\$1.50
									\$1.75



# STANDARD DOUBLE HEAD CHAPLETS

With Square or Round Plates  
Fitted

Fig. 254



PRICE PER HUNDRED

Diam. of Stem, Inches	Thickness of Heads	Diam. of Heads, Inches		Length Over All, Inches	Price
No. 8 Gauge	Gauge No. 18	Rd. $\frac{3}{4}$	Sq. $\frac{3}{4}$	$\frac{3}{16}$ $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1	\$4.50 4.50
No. 8 Gauge, or $\frac{3}{16}$	No. 18	1	1	$\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1 $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{3}{8}$ , $1\frac{1}{2}$ $1\frac{5}{8}$ , $1\frac{3}{4}$ , $1\frac{7}{8}$ , 2	4.50 4.50 5.00 5.50
$\frac{1}{4}$	No. 16	$1\frac{1}{2}$	1	$\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1 $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{3}{8}$ , $1\frac{1}{2}$	7.00 7.00
		$1\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{5}{8}$ , $1\frac{3}{4}$ , $1\frac{7}{8}$ , 2 $2\frac{1}{8}$ , $2\frac{1}{4}$ , $2\frac{3}{8}$ , $2\frac{1}{2}$ $2\frac{5}{8}$ , $2\frac{3}{4}$ , $2\frac{7}{8}$ , 3	8.00 8.00 9.00
$\frac{3}{8}$	No. 16	$1\frac{3}{4}$	$1\frac{1}{4}$	$\frac{1}{2}$ , $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1 $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{3}{8}$ , $1\frac{1}{2}$	8.00 9.00
		$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{5}{8}$ , $1\frac{3}{4}$ , $1\frac{7}{8}$ , 2 $2\frac{1}{8}$ , $2\frac{1}{4}$ , $2\frac{3}{8}$ , $2\frac{1}{2}$ $2\frac{5}{8}$ , $2\frac{3}{4}$ , $2\frac{7}{8}$ , 3	10.00 11.00 12.00
$\frac{1}{2}$	$\frac{1}{8}$	2	$1\frac{1}{2}$	$\frac{3}{4}$ , $\frac{7}{8}$ , 1 $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{3}{8}$ , $1\frac{1}{2}$ $1\frac{5}{8}$ , $1\frac{3}{4}$ $1\frac{7}{8}$ , 2 $2\frac{1}{8}$ , $2\frac{1}{4}$ , $2\frac{3}{8}$ , $2\frac{1}{2}$ $2\frac{5}{8}$ , $2\frac{3}{4}$ , $2\frac{7}{8}$ , 3	15.00 18.00 20.00 20.00 23.00 26.00
$\frac{5}{8}$	$\frac{1}{8}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$ , $\frac{7}{8}$ , 1 $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{3}{8}$ , $1\frac{1}{2}$ $1\frac{5}{8}$ , $1\frac{3}{4}$ $1\frac{7}{8}$ , 2 $2\frac{1}{8}$ , $2\frac{1}{4}$ , $2\frac{3}{8}$ , $2\frac{1}{2}$ $2\frac{5}{8}$ , $2\frac{3}{4}$ , $2\frac{7}{8}$ , 3	18.00 21.00 24.00 24.00 27.00 30.00
$\frac{3}{4}$	$\frac{1}{8}$	$2\frac{3}{4}$	$2\frac{1}{2}$	$\frac{3}{4}$ , $\frac{7}{8}$ , 1 $1\frac{1}{8}$ , $1\frac{1}{4}$ , $1\frac{3}{8}$ , $1\frac{1}{2}$ $1\frac{5}{8}$ , $1\frac{3}{4}$ , $1\frac{7}{8}$ , 2 $2\frac{1}{8}$ , $2\frac{1}{4}$ , $2\frac{3}{8}$ , $2\frac{1}{2}$ $2\frac{5}{8}$ , $2\frac{3}{4}$ , $2\frac{7}{8}$ , 3	26.00 30.00 34.00 38.00 42.00

On Plates larger than standard, add 15 cents per pound for extra iron.

“ANGLE STEM” CHAPLETS  
Made in One Piece

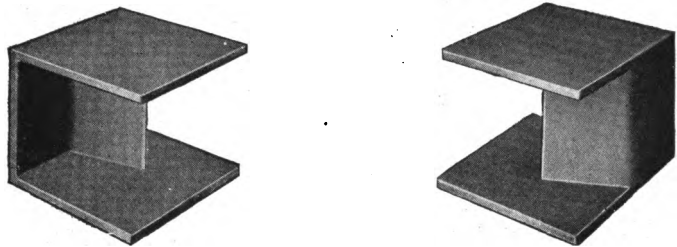


Fig. 255

The greater area and thinner section of stem insures a far more satisfactory fusing with metal than can be obtained with round stems. This does away with loose stems in castings, which is especially important where castings are required to withstand internal pressure, as it removes any occasion to drill out the stem and plug hole to secure a tight casting. That was the old way. The angle stem points the new and better way.

PRICE LIST PER HUNDRED

Length, Inches	No. 22 Ga. Equivalent to 1/8 Diam. Stems	No. 20 Ga. Equivalent to 3/16 Diam. Stems	No. 18 Ga. Equivalent to 1/4 Diam. Stems	No. 16 Ga. Equivalent to 3/8 Diam. Stems	No. 14 Ga. For Heavier Work
¼ to ½...	\$3.50	\$4.50	\$7.00	\$8.00	....
¾ to 1....	4.00	4.50	7.00	8.00	\$11.50
1½ to 1¾.	....	....	7.00	9.00	13.50
1¾ to 2...	....	....	....	....	15.00

ONE-PIECE CHAPLETS  
“PATENTED”

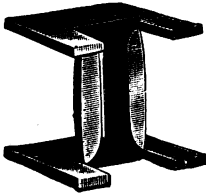


Fig. 256

We beg to call your attention to the following facts about our “One-Piece Chaplets: They are made in one piece; they can be bent double or set at any angle without breaking; the heads are all parallel; they are all accurate lengths; the slot in the head gives them a holding feature in the sand and prevents washing from position.

The corrugation in the stem increases the compression strength. They are made from a special grade of soft steel and have been thoroughly tested. These chaplets are plated with pure tin by a process that insures every portion of the surface being covered.

Sizes	Price per Hundred
7/16, ½, 9/16, ⅝, ¾, ⅞, and 1 inch.....	\$6.00
1¼, 1½, 1¾, and 1⅞ inch.....	6.50
1¾, 1¾, 1¾, and 2 inch.....	7.00



### WATER BACK CHAPLETS

#### No. 8 Gauge, 3-16 Inch and 1-4 Inch Diameter Stems



Fig. 257

Diam. of Stem, Inches	Diam. of Heads, Inches	Thickness of Heads, Gauge	Length Over all, Inches	Price Per Hundred
No. 8 Gauge, or 3/16	1 1/8 and 3/4	No. 18	1/4, 3/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1	\$3.00
1/4	1 1/8 and 3/4	No. 16	3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1	\$3.50

### RIVET STEM STOVE CHAPLETS



Fig. 258  
Round Head

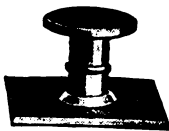


Fig. 259  
Square Head

Diam. of Stem, Inches	Diam. of Head, Inches	Thickness of Head	Length Over All, Inches	Price Per Hundred
No. 8 Gauge	3/4 Round or Sq.	No. 18 Gauge	1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1	\$3.00

### SPECIAL MOTOR CHAPLETS

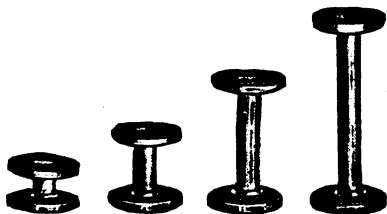


Fig. 260

Diam. of Stem, Inches	Diam. of Head, Inches	Thickness of Heads	Length Over All, Inches	Price Per Hundred
No. 12 Gauge	3/8	No. 18 Gauge	1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8, 1 1 1/8, 1 1/4, 1 3/8, 1 1/2	\$3.00 3.50 4.00

### BRIDGE OR SADDLE-BACK CHAPLETS

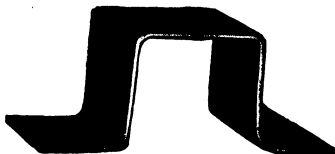


Fig. 261

Height, Inches	Price Per Hundred	Height, Inches	Price Per Hundred
1/4	\$1.40	1	\$2.00
3/8	1.50	1 1/8	2.10
1/2	1.60	1 1/4	2.20
5/8	1.70	1 3/8	2.30
3/4	1.80	1 1/2	2.40
7/8	1.90		

ERIE GRAY IRON CHAPLETS



Fig. 262

The above cut shows our double head gray iron chaplet. It will do the same work as any wrought iron chaplet on the market, and for one-third the cost, as they are made by machine.

This gray iron chaplet has a good bearing surface, the heads being from 1 to 2 inches in diameter, according to size of chaplet. The stems are rougher than the wrought iron chaplets, so that the hot iron grips it more readily. Stems are from 5-16 to  $\frac{1}{2}$  inch in diameter. They fuse into the hot iron, preventing "blow-holes." In hot or cold-water castings the plain chaplets will rust in.

PRICE PER HUNDRED

Size	Plain	Tinned	Coppered
$\frac{1}{4}$	\$0.75	\$1.20	\$0.95
$\frac{3}{8}$	.80	1.35	1.12
$\frac{1}{2}$	.90	1.50	1.25
$\frac{5}{8}$	.95	1.70	1.40
$\frac{3}{4}$	1.05	1.95	1.55
$\frac{7}{8}$	1.12	2.15	1.70
1	1.20	2.40	1.90
$1\frac{1}{8}$	1.35	2.55	2.00
$1\frac{1}{4}$	1.50	2.70	2.15
$1\frac{3}{8}$	1.65	3.00	2.25
$1\frac{1}{2}$	1.80	3.30	2.50
$1\frac{5}{8}$	1.95	3.75	2.75
$1\frac{3}{4}$	2.10	4.20	3.10
$1\frac{7}{8}$	2.25	4.80	3.35
2	2.50	5.30	3.75

Coppering and tinning chaplets prevents rusting in the foundry. Tinning chaplets prevents blowing.

# PERFORATED CHAPLETS

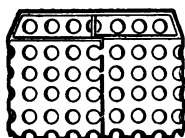


Fig. 263  
With Bridge,  
Style 1

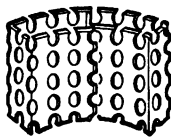


Fig. 264  
With Bridge,  
Style 2

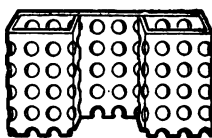


Fig. 265  
Double,  
Style 3

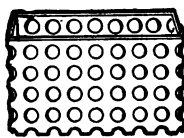


Fig. 266  
Without  
Bridge,  
Style 4

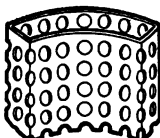


Fig. 267  
Without  
Bridge,  
Style 5

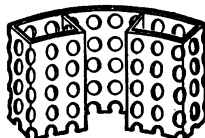
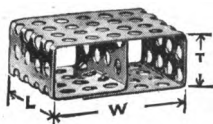


Fig. 268  
Double,  
Style 6

The Perforated Tin Chaplets as shown above are made of sheet metal, tin plated. These chaplets are particularly adapted for use on radiators, gas burners, water backs and fronts, gas engine, and similar castings.

Through their use not only time and labor is saved in adjusting the cores to the mold, but they eliminate the possibilities of blow-holes, chills, leaks, etc. They form a perfect union with the metal, assuring an absolute pressure-tight joint. We can make any size, style, or gauge to order.

Below we show a cut, showing just how our chaplets are measured.



When ordering chaplets, please give the thickness, width, length, diameter of core on curved chaplets, and style. It is advisable to send sample to determine the gauge tin. By following these directions you will enable us to fill your order without unnecessary correspondence.

Prices on application

## SKIM GATES

Perforated Skim Gates are cheapest and most efficient gates made to-day. By making a basin over your sprue hole and laying a skim gate over it, it will catch most of the dirt, and will melt out about the time the basin is filled. Made any size desired.

Prices on application.

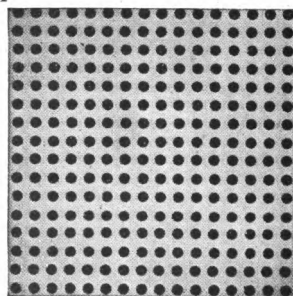


Fig. 269

## Twisted Steel Gaggers

### Gaggers That Grip the Sand

#### ADVANTAGES TO BE GAINED BY USING TWISTED STEEL GAGGERS

They cost no more than ordinary round-rod or cast-iron gaggers, and are vastly superior in every way.

The twist holds the sand so securely that "drop-outs" are impossible.

Always ready for immediate use.

Leg and heel bent any length desired.

Barreled for convenient handling and storing.

Always spotted in the foundry as gaggers, on account of their distinctive shape; no danger of being thrown out as scrap.

Practically indestructible.

Have four times the grip on a body of sand of any round or square gagger.

They reduce gagger bother and expense to the minimum.

Made in  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ , and  $\frac{5}{8}$ -inch diameters. When ordering specify length of toe and heel. Can be bent any size desired.

Prices on application.

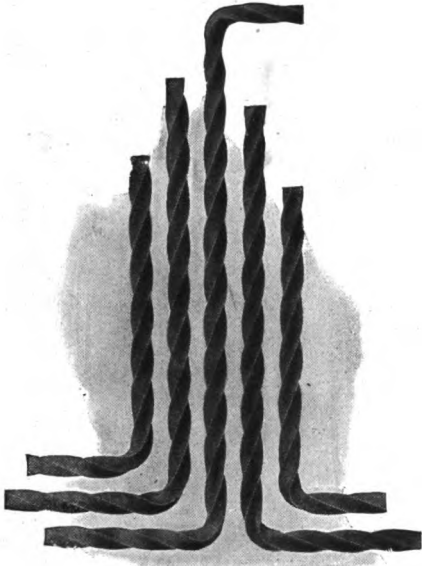


Fig. 270

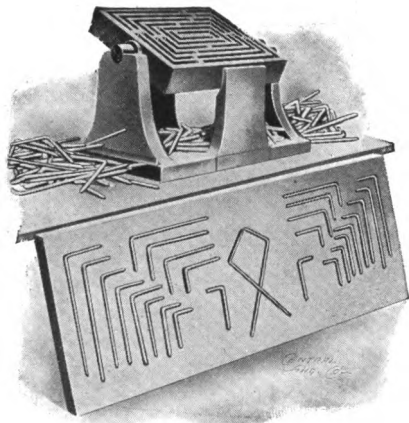
### AIR COOLED GAGGER MOLD

Made in nine sizes, as follows:

5x4,  $7\frac{3}{4}\times3\frac{1}{2}$ , 12x5,  $6\frac{3}{4}\times3\frac{1}{2}$ ,  
9x5 $\frac{1}{2}$ , 15x5,  $7\frac{1}{2}\times2\frac{1}{2}$ , 10x5,  
15 $\frac{1}{2}\times6$ .

Pattern both sides, one side cooling while the other is being used. No water required for cooling.

Price, \$50.00.



## Flask Clamps

### Improved Malleable Iron Eccentric Clamp and Adjustable Screw Clamps

These clamps are manufactured from malleable iron. The bar is double flanged on both sides, giving it the requisite strength without excessive weight.

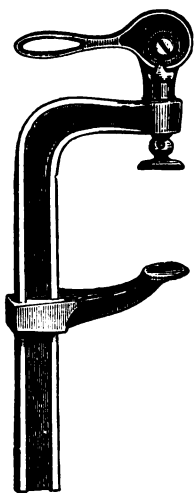


Fig. 272

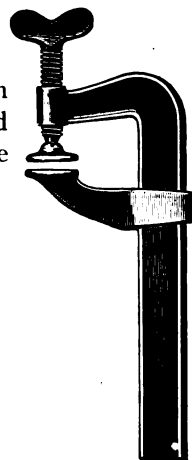


Fig. 273

#### ECCENTRIC CLAMPS

	Per Doz.
No. 0 opens 2 1/4 inches.....	\$5.40
1 opens 4 inches.....	7.20
2 opens 6 inches.....	9.90
3 opens 8 inches.....	12.60
4 opens 12 inches.....	15.30

#### ADJUSTABLE SCREW CLAMPS

	Per Doz.
No. 1 opens 4 inches.....	\$7.20
2 opens 6 inches.....	9.90
3 opens 8 inches.....	12.60

#### MALLEABLE IRON SCREW CLAMPS

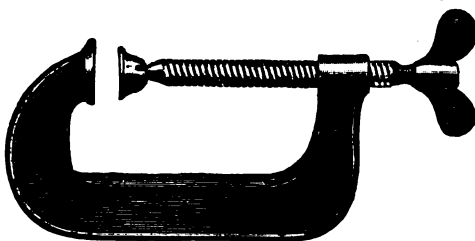


Fig. 274

This Malleable Iron Screw "C" Clamp is well proportioned, strong, and durable.

	Per Doz.
2 1/2-inch opening.....	\$4.50
3 -inch opening.....	5.25
4 -inch opening.....	6.75
5 -inch opening.....	8.25
6 -inch opening.....	10.50
7 -inch opening.....	12.75
8 -inch opening.....	16.50
9 -inch opening.....	19.50
10 -inch opening.....	22.50
12 -inch opening.....	25.50
14 -inch opening.....	33.00

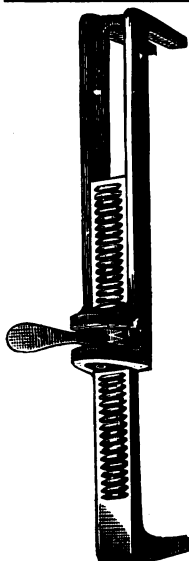


Fig. 275

Our Lightning Flask Clamp in your foundry will prevent run-outs, crushing and knocking loose of delicate molds, and with a saving of three-fourths of time against the old style of clamps and wood wedges. They are made of malleable iron and are indestructible; no projections to prevent rolling of flask, no loose parts to get lost, instantly adjusted, and stays where put. The price and time lost looking for wooden wedges will pay for a set of these clamps in a short time.



Fig. 276

## Flask Clamps UNIVERSAL CLAMP

These clamps present several new features not combined in any other clamp now in use. They instantly adjust themselves to flask, and when in position are entirely free from projecting parts, making it possible to roll the flask without disturbing the fastenings.

	Per Doz.
No. 1 —taking in from 0 to 7 inches.....	\$5.00
No. 2 —taking in from 7 to 12 inches.....	7.00
No. 3 —taking in from 12 to 22 inches.....	13.00
No. 3½—taking in from 18 to 36 inches.....	30.00
No. 4 —taking in from 22 to 43 inches.....	36.00

## LIGHTNING FLASK CLAMP

Size	Price Each
5 to 8-inch.....	\$0.90
8 to 12-inch.....	1.50
12 to 20-inch.....	2.50
20 to 36-inch.....	3.60

## HOLDTITE STEEL FLASK CLAMPS

### A Better Flask Clamp

Holdtite Steel Clamps are made from rail steel, and are so constructed that they can be adjusted instantly to any size flask within the size of the clamp. A Holdtite Clamp will take the place of from five to ten of the old-style clamps.

### MADE IN THREE SIZES

	Per Doz.
No. 0, Opens 18 to 33 inches.....	\$10.50
No. 1, Opens 13 to 23 inches.....	9.00
No. 2, Opens 9 to 15 inches.....	7.00

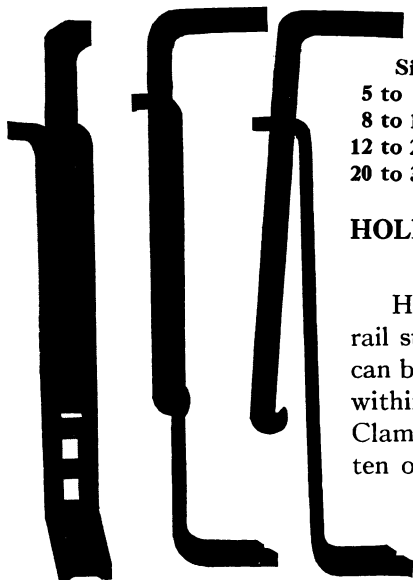


Fig. 277

## Flask Clamps

### THE DIAMOND ADJUSTABLE FLASK CLAMP

One of the most reliable on the market. They have been in use for a number of years, and have given perfect satisfaction.

Send us your order for the heads, and have your blacksmith fit in the tails to suit your work. See price list below:

#### PRICE LIST OF DIAMOND ADJUSTABLE CLAMP HEADS

Heads	Per Doz.
No. 1 Head—For $\frac{3}{4} \times \frac{1}{2}$ bar iron tail.....	\$4.80
No. 2 Head—For $\frac{3}{4} \times \frac{3}{4}$ bar iron tail.....	6.00
No. 3 Head—For $\frac{1}{2} \times \frac{1}{2}$ bar iron tail.....	7.20
No. 4 Head—For 1x1 bar iron tail.....	8.40

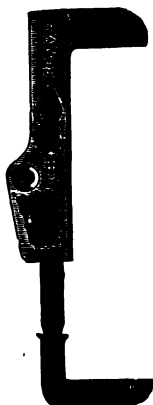


Fig. 278

#### CLAMPS COMPLETE

No. Clamp	No. Head	Adjustment	Per Doz.
6	1	From 10 to 14-inch.....	\$12.00
7	1	From 14 to 18-inch.....	12.00
8	1	From 18 to 22-inch.....	12.00
9	2	From 7 to 12-inch.....	14.00
10	2	From 12 to 17-inch.....	14.00
11	2	From 17 to 22-inch.....	14.00
12	2	From 22 to 27-inch.....	14.00
13	3	From 8 to 14-inch.....	16.00
14	3	From 14 to 20-inch.....	16.00
15	3	From 20 to 26-inch.....	16.00
16	3	From 26 to 32-inch.....	16.00

### THOMPSON'S ADJUSTABLE FLASK CLAMPS

These clamps being made of malleable iron are extremely durable and not subject to breakage. Contrary to the regular run of clamps, they clamp perpendicularly, and there is no transverse or cross-strain which will shift the mold or pins and spoil a casting. They will be found economical and a good tool for any shop, and will save their cost inside of six months.

Size	Per Doz.
16 inches.....	\$14.50
20 inches.....	16.80
24 inches.....	19.20
30 inches.....	22.80
36 inches.....	26.50
42 inches.....	30.00

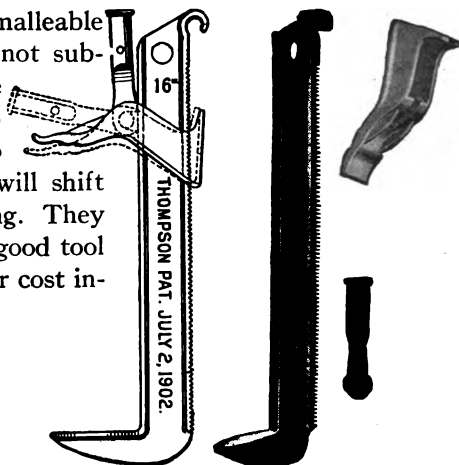


Fig. 279

## Steel Foundry and Shop Barrels

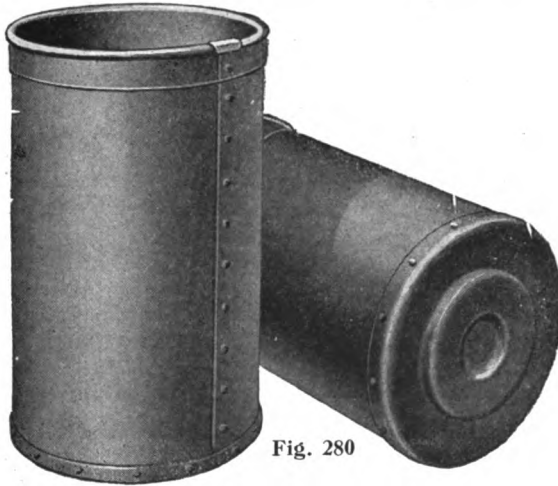


Fig. 280

### King of All

Note the top reinforcement, which consists of a  $\frac{3}{8}$ -inch round steel rod, rolled in top of body, using enough body stock to not only enclose rod, but to form a skirting 1 inch wide, as shown, which lies flat against barrel body. Joint reinforced with steel clip, riveted to body and enclosing rod. This makes our barrel 50 per cent stronger than any other barrel on the market. Regular size 18 inches in diameter, 20 inches high. Can furnish any height desired. Body No. 16 gauge, bottom No. 9 gauge. Corrugated, painted black.

Price on application.

## STEEL TOTE BOXES

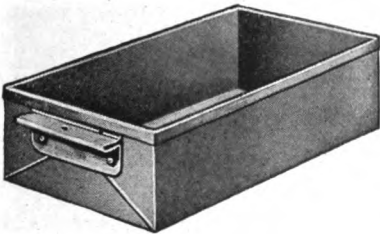


Fig. 281—Straight

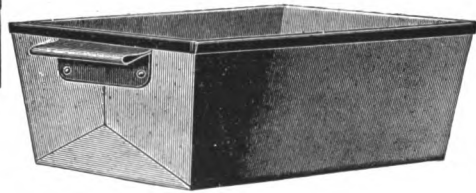


Fig. 282—Tapered

These boxes are very strong and durable, top seam passing around the corners unbroken to reinforce. You will find these boxes so convenient and economical you will not do without them—you can't afford to.

Can also furnish with roll or forged handles. We will quote prices upon receipt of quantity and size.



## Foundry Nails

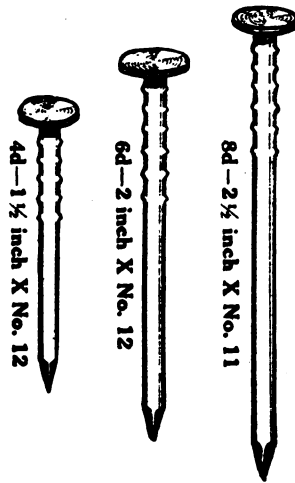


Fig. 283

Our Foundry Nails have square point and large flat thin heads. They are a big saving over common nails, by reason of there being many more to the keg, owing to the smaller gauge. Not only is the count greater, but the area of the head is an average of 100 per cent greater than the common nail, thereby taking fewer nails to accomplish the same result.

Shipped in 100-pound kegs only.

Size	Length, Inches	Gauge	Diam. Head, Inches
2d	1	12	7/16
4d	1½	12	7/16
6d	2	12	7/16
8d	2½	11	½
10d	3	10½	½
12d	3¼	10	½
20d	4	9	½

and larger.

Prices on application

## Nos. 28 and 29 Special Foundry Barrows



Fig. 284

Nos. 28 and 29 are by far the strongest wheelbarrows on the market. They are designed especially for wheeling castings, scrap metals, and for other hard foundry work. Every item of their construction is extra strong, insuring long life under the most severe service and abuse.

The Boiler Plate Platform is full width of tray. It extends nearly full length of front and part way up back, forming a rigid saddle for the tray.

**DESCRIPTION.**—All steel. The tubular frame forms both handles and wheel guard. Wheel is 16 inches in diameter, equipped with a double tire which is 2 inches wide by  $\frac{3}{4}$  inch thick. The wheel hub is steel, and is equipped with self-lubricating bearings. The boiler plate platform is 3-16 inch thick, and is attached to the frame with patented clamps (instead of bolts). Legs are constructed from heavy channel steel "V" braced and riveted and further supplied with steel shoes. Front braces are made of bar steel  $1\frac{1}{2}$  inches wide by  $\frac{3}{8}$  inch thick. Trays are furnished in either 16, 14, or 12-gauge (see list below):

**SIZES, WEIGHTS, AND PRICES**  
**Tray Dimensions**

No	Gauge of Tray	Full Capacity	Length at Top	Width at Top	Depth at Wheel	Depth at Handle	Length Over all	Width Over all	Height Over all	Weight Each	Price Each
28	16	3½	34	29	14½	6½	65	29	24½	104	\$18.00
	14	3½	34	29	14½	6½	65	29	24½	113	19.00
	12	3½	34	29	14½	6½	65	29	24½	125	20.00
29	16	4	36	30	16	7½	65	30	25	110	18.50
	14	4	36	30	16	7½	65	30	25	119	19.50
	12	4	36	30	16	7½	65	30	25	131	20.50

GENERAL PURPOSE FOUNDRY BARROWS

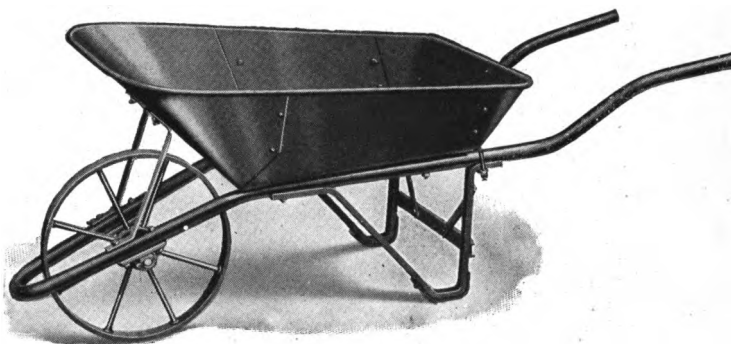


Fig. 285

A great feature in favor of this line of tubular barrows is their absolute interchangeability of parts. The line embodies a variety of sized trays, which meet the every requirement from small sand barrows to large coal barrows.

Each barrow in this line has the same sized wheel, the same leg, the same frame, and all trays are punched the same. This feature minimizes the ordering of repairs.

The wheels are all supplied with self-oiling bushings. The legs are made of channel steel, with all braces riveted. The trays are full thickness, with double corners, and reinforced at top with continuous rod.

DESCRIPTION, SIZES, WEIGHTS, AND PRICES  
Tray Dimensions

No.	Gauge of Tray	Capacity cu. ft.	Length at Top	Width at Top	Depth at Wheel	Depth at Handle	Height Over All	Weight Per Doz.	Price Per Doz.
7AA	18	2½	32	26½	12½	5	22½	685	\$92.00
7A	18	3	33	27½	13½	5½	23	780	102.00
7A	12	3	33	27½	13½	5½	23	1,044	126.00
7	16	3½	34	29	14½	6½	24½	804	108.00
7	14	3½	34	29	14½	6½	24½	912	120.00
7	12	3½	34	29	14½	6½	24½	1,056	132.00
7B	16	4	36	30	16	7½	25	876	114.00
7B	14	4	36	30	16	7½	25	984	126.00
7B	12	4	36	30	16	7½	25	1,128	138.00
35	16	5½	38	34	18½	10	27½	960	138.00

No. 11 COAL BARROW



Fig. 286

There has long been a demand for coal barrows of large capacity, of easy wheeling ability, and long

life. The barrows on this page answer all requirements thoroughly.

**DESCRIPTION.**—Tray 14-gauge steel, 44 inches long by 32 inches wide over all. Depth: at front, 24 inches; at rear, 11 inches. Tubular steel frame. Channel steel legs with square feet and heavy shoes. Self-lubricating wheel, patented handle clamps. Capacity, 350 pounds hard, 600 pounds block coal. Weight 97 pounds.

**Price, \$14.00 Each.**

No. 11 A COAL BARROW

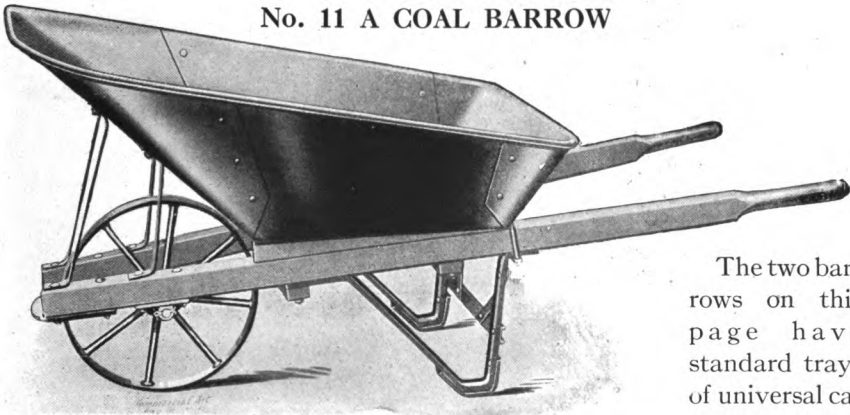


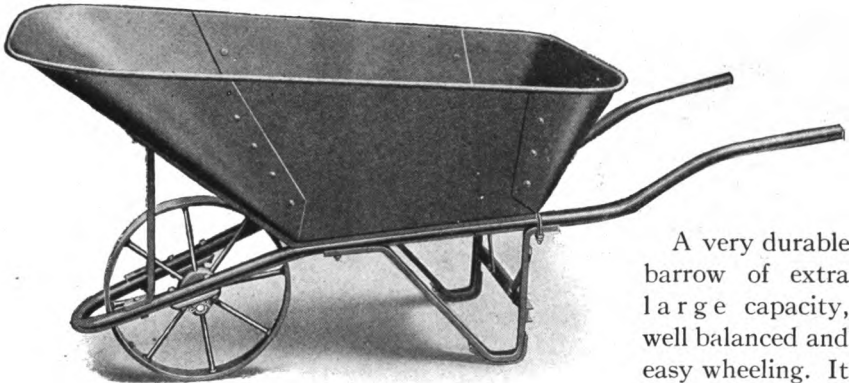
Fig. 287

The two barrows on this page have standard trays of universal capacity.

**DESCRIPTION.**—The No. 11 A is the same as the No. 11, except that it is mounted on a combination bone-dry hard maple and channel steel frame. The use of the patented handle clamps reduces breakage of handles to a minimum. Capacity: 350 pounds hard, 600 pounds block coal. Weight, 95 pounds.

**Price, \$13.00 Each.**

**No. 25 COKE BARROW**



**Fig. 288**

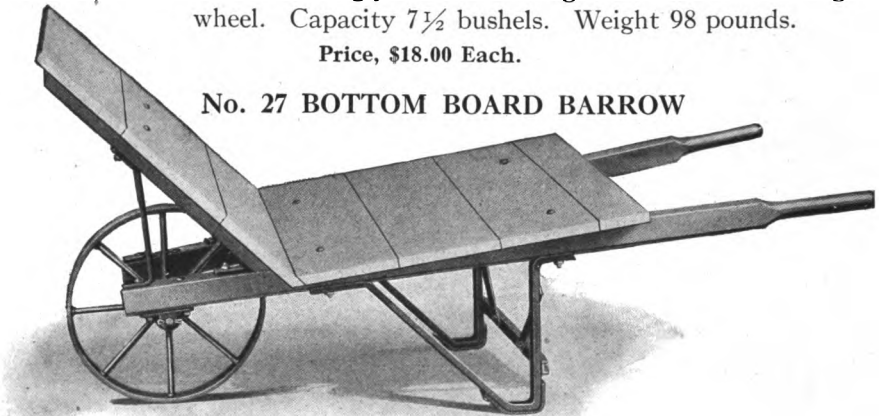
A very durable barrow of extra large capacity, well balanced and easy wheeling. It makes good because it has the

“goods.” That means the best materials and excellent design.

**DESCRIPTION.**—Tray 14-gauge steel, reinforced at edge, mounted on combination tubular and channel steel frame. Heavy legs with square feet and heavy shoes. Strongly braced throughout. Self-lubricating wheel. Capacity  $7\frac{1}{2}$  bushels. Weight 98 pounds.

Price, \$18.00 Each.

**No. 27 BOTTOM BOARD BARROW**



**Fig. 289**

A demonstrated success for wheeling bottom boards in malleable foundries and in brass and cast-iron foundries where quantities of bottom boards are used. Gives maximum capacity and long service.

**DESCRIPTION.**—Bed and front of hard maple mounted on combination hard maple and channel steel frame. Bottom 24 inches by 28 inches. Front 24 inches by 24 inches. Strong steel braces support front of tray. Channel steel legs with square feet and heavy shoes. Self-lubricating wheel. Weight 75 pounds.

Price, \$12.00 Each.

**No. 37 SPECIAL PIG IRON BARROW**

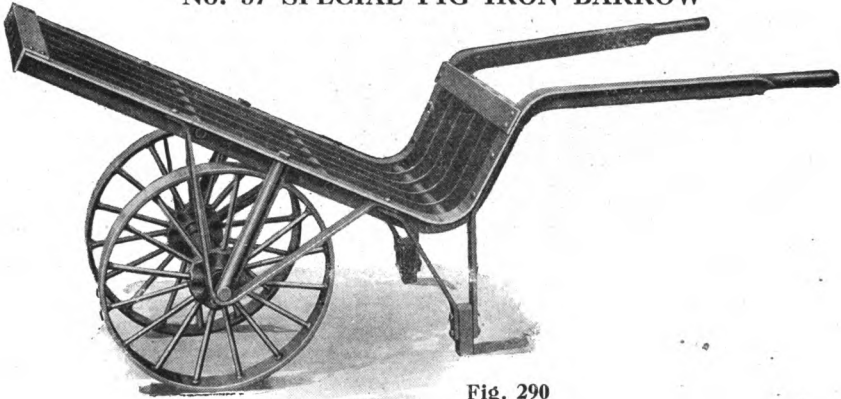


Fig. 290

A barrow designed especially for conveying pig iron from the piles to the cupola or malleable furnace. This is service under which no ordinary barrow can long survive. The strength built into this special barrow enables it to stand up long and well to such severe service. The two wheels give it perfect balance. The load comes over the wheels.

Price, \$36.00 Each.

**WOOD HANDLE BARROW No. 15**

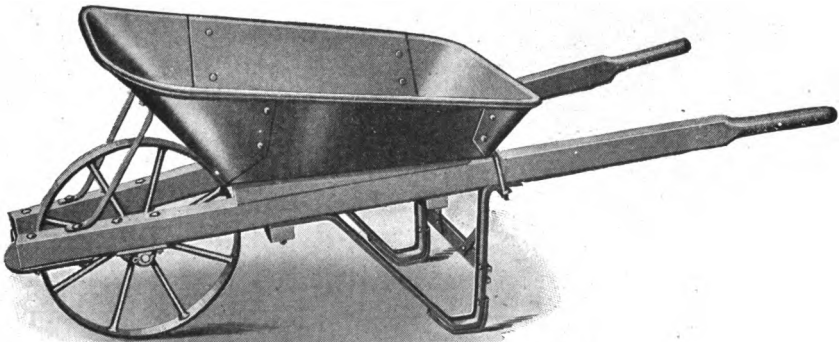


Fig. 291

Notice the wheel guard. This makes it one of the best barrows of its kind constructed to-day. The No. 15 Tray is constructed in three different gauges of steel, and is mounted on a No. 1 frame, and has self-lubricating wheel. Weight per dozen, 840 lbs. Capacity,  $3\frac{1}{2}$  cu. ft.

No. 16 Gauge, price per dozen.....	\$108.00
No. 14 Gauge, price per dozen.....	120.00
No. 12 Gauge, price per dozen.....	132.00

**"NATIONAL" PATENTED FOUNDRY BARROW**

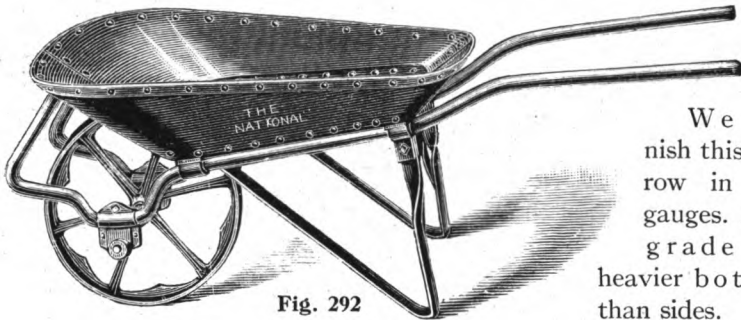


Fig. 292

We furnish this barrow in two gauges. Each grade has heavier bottom than sides.

No.	Width of Tray, Inches	Length of Tray, Inches	Diam. Wheel, Inches	Gauge of Tray, Sides	Gauge of Tray Bottom	Capacity, Cu. Ft.	Price Each
4A	29	32	16	12	10	3	\$17.00
5A	31½	36	16	12	10	4	18.00
6A	32	38	16	12	10	4½	19.50
7A	36	39	16	12	10	5½	23.00
4AA	29	32	16	12	8	3	18.00
5AA	31½	36	16	12	8	4	19.00
6AA	32	38	16	12	8	4½	21.00
7AA	36	39	16	12	8	5½	24.00

**"NATIONAL" PATENTED COAL BARROW**



Fig. 293

No.	Width of Tray, Inches	Length of Tray, Inches	Diam. Wheel, Inches	Gauge of Tray,		Capacity, Bushels	Price Each
				Side	Bottom		
9	32	34	18	14	10	3½	\$25.00
10	33	36	18	14	10	4½	27.00
11	35	38	18	14	10	5½	30.00
12	36	40	18	14	10	6½	32.00
13	38	42	18	14	10	8	35.00

Above style of barrow can also be made of 12 and 10-gauge steel. Can also be furnished with two wheels if desired.

**"NATIONAL" CHARGING BARROWS**

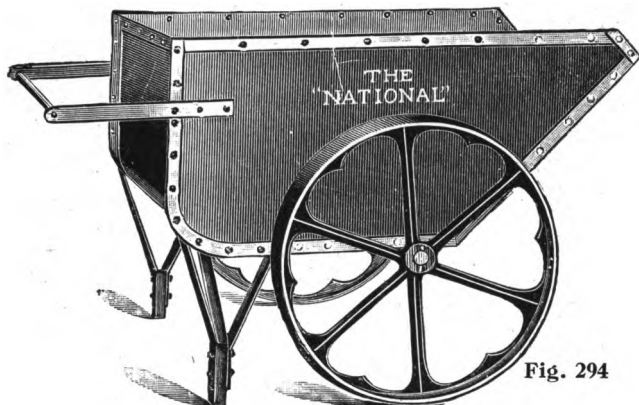


Fig. 294

No.	Capacity, Cubic Feet	Gauge, Bottom	Gauge, Sides	Diameter Wheel	Price Each
1	8	12	14	24	\$45.00
2	10	12	14	24	50.00
3	12	12	14	24	55.00
4	16	10	12	28	57.00
5	20	10	12	28	60.00

Can be furnished with one leg and swivel wheel at slight additional cost, instead of two legs, as shown above.

**"NATIONAL" PIG METAL BARROW**



Fig. 295

Especially designed and constructed for the handling of pig iron and other heavy castings.

These barrows are made of iron strips, set edgewise and securely fastened together. This construction insures a rigid and firm platform. In shops where large and heavy loads are carried, we recommend our two-wheel pig metal barrows.

Single-wheeled Barrow..... Price each, \$30.00

Double-wheeled Barrow..... Price each, 40.00



### HEAVY DUTY CASTINGS BARROW

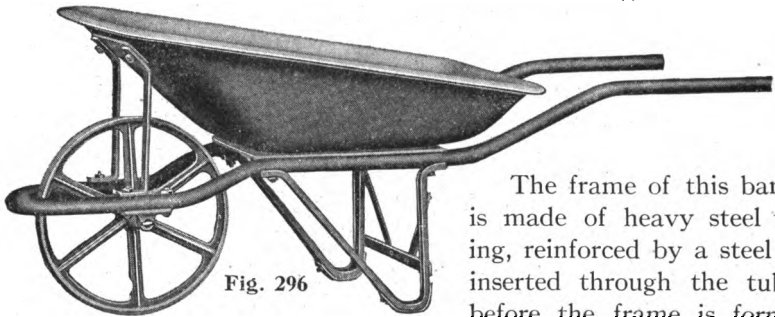


Fig. 296

The frame of this barrow is made of heavy steel tubing, reinforced by a steel rod inserted through the tubing before the frame is formed.

The tray is stamped from No. 12-gauge steel, and has a one-inch half-round band riveted under the flange around the top. This adds to the stiffness of the tray and prevents it from losing shape under heavy loads. The tray is further reinforced by a wide strap of steel extending across the front between the upper ends of the dash braces.

The steel platform or extra bottom on which the tray rests is an improvement which prolongs the life of the tray decidedly. It prevents the bottom from sagging or becoming dented. The legs are heavy channel steel, with riveted braces and bar steel shoes.

The wheel is strong, durable, light-running, and so located that it takes the weight of the load off the man. The wheel carries the load.

Dimensions of tray: 37 inches long; 30 inches wide; 9 inches deep at wheel end, 6 inches deep at handle end. **Price Each, \$18.00.**

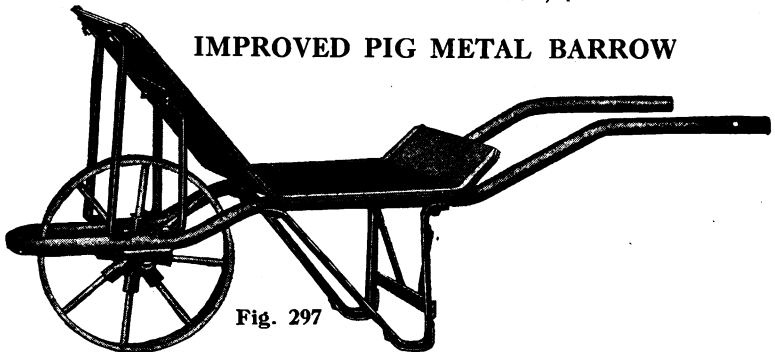


Fig. 297

Bottom and Dash made of a single plate of No. 7-gauge steel. Length of bottom, 18 inches; width, 23 inches. Length of dash, 18 inches; width, 23 inches. Extra straps of steel riveted full length on each side of bottom and dash. Heavy tubular steel frame, well braced. Channel steel legs, with riveted braces and bar steel shoes. Durable, easy-running wheel. The load is carried over the wheel.

**Price Each, \$16.00.**

U. S. DROP FRAME TUBULAR STEEL WHEELBARROWS



Fig. 298

U. S. Tubular  
Barrows Are Strong  
and Durable

The tray is smoothly stamped without seams or laps. The top is rolled over a steel rod, which makes the tray rigid and the edge smooth. The legs and braces are heavy bar steel. The wheels are self-oiling and light running. The tray-strap joining the upper ends of the tray braces extends clear across the front of the tray and prevents sagging under heavy loads. Have two pairs of front tray braces.

No.	Ca- capacity cu. ft.	Gauge of Steel Tray	Length of Tray on Top	Depth of Tray on Top	Depth at Wheel	Depth at Handle	Great- est Height	Weight	Price Each
10	6	13	42 in.	33 in.	12 in.	6 in.	23 in.	110 lbs.	\$13.50

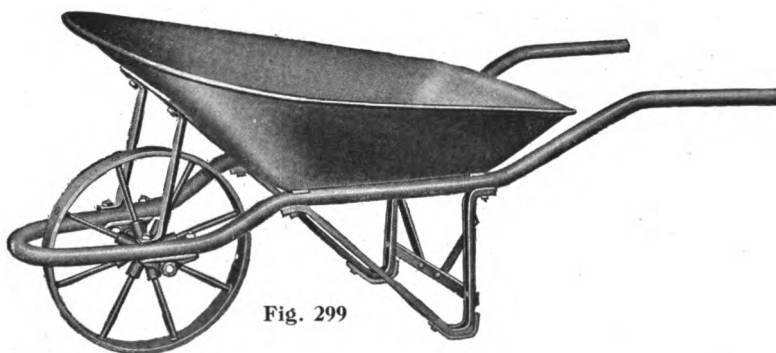


Fig. 299

These barrows are identical in construction as those shown in Fig. 298, except the wheels, which are made entirely of steel, and have channel steel legs and riveted braces and steel shoes. These barrows can be furnished with same legs as shown in Fig. 298, if desired.

No.	Ca- capacity cu. ft.	Gauge of Steel in Tray	Length of Tray on Top	Width of Tray on Top	Depth at Wheel	Depth at Handle	Weight	Price Each
3	3	12	33 in.	28 in.	7½ in.	5 in.	85 lbs.	\$12.00
6	4	12	37 in.	30 in.	9½ in.	6 in.	100 lbs.	13.00

## Hand Trucks

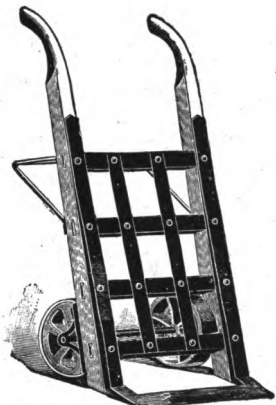


Fig. 300

These trucks are extra heavy, and will stand rough handling. The nose is steel, has forged axles and turned bearings. Center straps are bolted to each cross-bar. All cross-irons extend the full width of truck and are bolted through side rails. Iron wheels.

No.	Weight, Pounds	Length Handles, Inches	Width, Inches	Diam. Wheels	Price Each
1	120	60	24	10 $\frac{3}{4}$	\$20.00
2	150	66	25	12	28.00

## BARREL TRUCKS

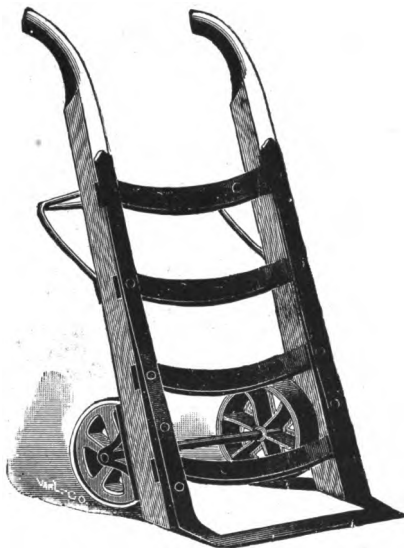


Fig. 301

These trucks have bent iron cross-bars and straight steel nose. Axles are forged with turned bearings.

No.	Weight pounds	Length Handle inches	Width Inches	Diam. Wheel Inches	Price each
3	50	48	19	7 $\frac{1}{2}$	\$9.00
4	75	52	20	8 $\frac{1}{2}$	11.00
5	90	56	22	9 $\frac{1}{2}$	16.00

## Adams' Snap Flasks

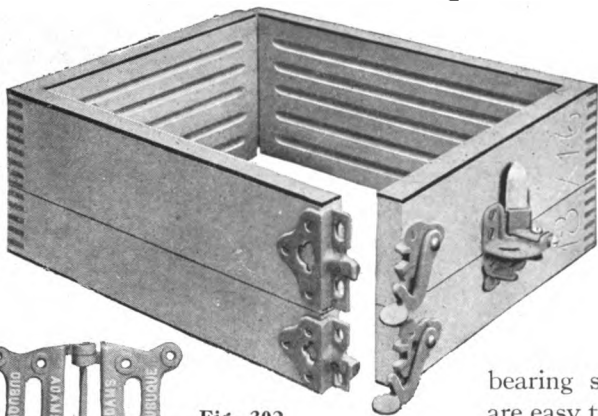


Fig. 302

Adams' Cherry Snap Flasks are made of  $1\frac{1}{8}$ -inch thick cherry wood. The ears have milled adjustable V-blocks, which insure accurate fit. Adjusting screws are brass. The pins have milled

bearing surfaces. The snaps are easy to operate; hooks can be bent to take up all wear.

The lugs are made to correspond with hinges, and form a shoulder which helps to hold the flasks true. The hinges are accurately milled and bored to secure a perfect fit, and are exceptionally strong. Top irons are welded at corners.

	Each
Rectangular.....	\$10.00
Rectangular, 3-Part.....	15.00
Rectangular, Irregular Parting Line.....	15.00
Rectangular, Copes and Drags.....	5.00
Trapezoidal.....	15.00

Any size or shape flasks to order. Prices on application.  
Roll-over or tapered flasks same price.

## ADAMS' ROUND FLASK

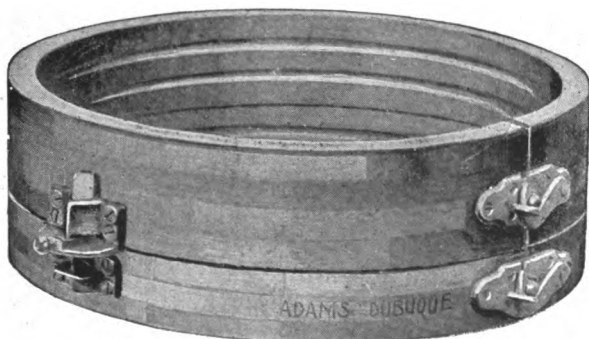


Fig. 303

Same materials and construction as Fig. 302.

	Each
Round Flasks.....	\$20.00
Round Cope and Drags.....	10.00

### "DURO" SNAP FLASK

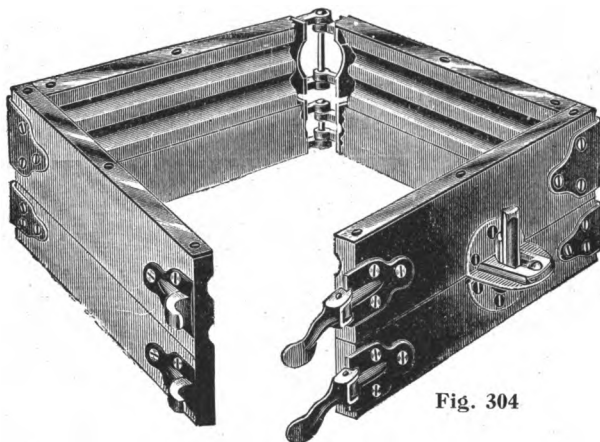


Fig. 304

The "Duro" Flask is guaranteed to be perfect in every respect. The malleable iron hinge is so constructed that the sand cannot lodge in it and spring the flask when closing.

The hooks and latches are carefully fitted and are easy to operate. These flasks are light, durable, and made from well-seasoned hardwood.

Two-part, up to and including 12x18.....	\$6.00
Two-part, over 12x18 and including 15x20.....	6.25
Larger sizes.....	6.75

For Tapered Snap Flasks, add \$1.00, net, to above prices. The taper is one inch per foot per side.

For Three-part Flasks, add 50 percent to above prices.

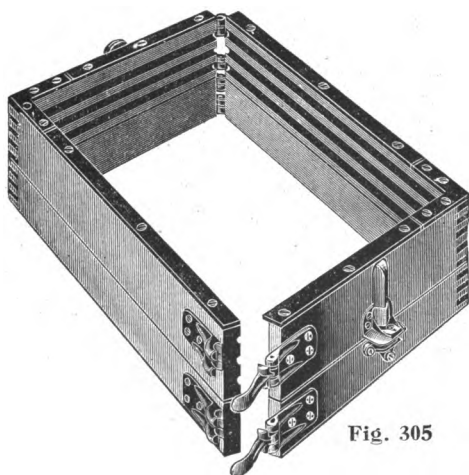


Fig. 305

### EUREKA SNAP FLASKS

Our Eureka Snap Flasks are the same in construction as our Fig. 304, except the corners, which are tongued and grooved, and the hinge, which is somewhat different in construction. The taper on these flasks is  $\frac{1}{4}$  inch per foot per side.

Price the same as Fig. 304.

Special prices on round and special flasks.

THE DIAMOND STANDARD SNAP FLASK

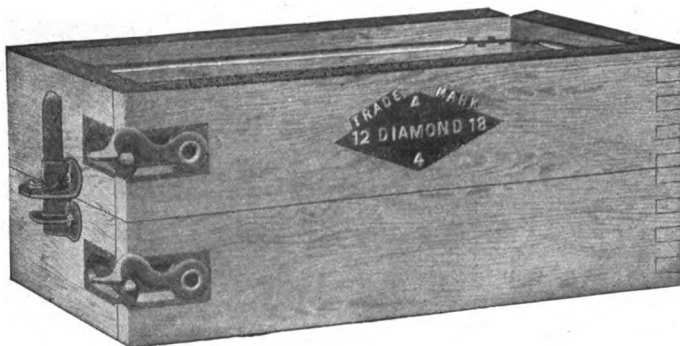


Fig. 306

**One Inch Thick, with Two Styles of Latches (Hook or Folding), and Boxed Corners**

Fittings all mortised into the wood and put on with bolts. The Diamond Standard Snap Flask we claim to be the lightest and strongest built flask of its class on the market. Don't wear your molder out handling a heavy flask.

This flask can be made in any style desired, plain, braced, or with irregular parting line. When these flasks are of such length that they require bracing, we would suggest that you order the machine flask, which is much stronger than the standard flask braced. We can put machine flask pins on this flask at an extra cost, and unless specified we use the Hook Latch.

All our flasks are what we call left-hand, as shown above. If you want them right-hand, specify in ordering. In ordering this flask be sure and say "Standard." We use maple lumber in the manufacture of these flasks. Taper is 1 inch per foot per side.

**PRICE LIST ON DIAMOND STANDARD SNAP FLASKS**

	Each
Straight Two-part Snap Flasks, all sizes up to and including 12x18" . . . .	\$7.50
All size flasks over 12x18" up to and including 15x20" . . . . .	7.50
All size flasks larger than 15x20" . . . . .	7.50

All flasks deeper than 6 inches, either cope or drag, add 10 cents per inch extra.

Taper flasks, add \$1.00 extra over net price of straight flasks.

For bracing flasks over 24 inches long, add 25 cents extra over net price.

THE DIAMOND MACHINE AND SQUEEZER SNAP FLASK

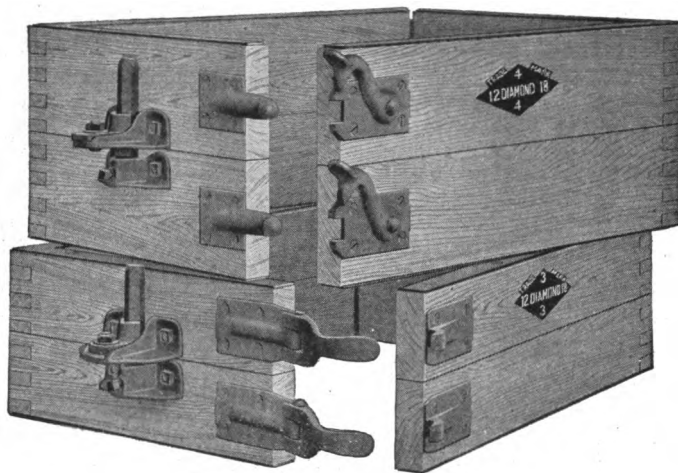


Fig. 307

**1½ Inch Thick, with Two Styles of Latches, Welded Binding and Boxed Corners**  
**All fittings put on with wood screws, not mortised.**

In presenting this flask to the foundry trade, we guarantee it to be a flask of the highest quality, containing all the latest improvements in the snap flask line.

First, the pins and sockets are a combination of round and V-shape, all turned and milled, adjustable on both drag and cope, and by boring two (2) ¾-inch holes in the match plate you can adjust the drag to fit the plate, after which you can adjust the cope to fit the drag on the "V" portion of the pins, as it is easier to bore a round hole in a plate than to fit it to a "V;" besides, the molder can do this without lugging the whole outfit to the flask or pattern maker.

Second, the hinge is the best steel hinge that can be made; it covers the whole surface of the wood, also the top and parting, preventing the sand from getting into joints. These hinges are not like the old barn-door hinges—just bent up; they are welded after being bent, thus making them a solid steel hinge. If you make your own flasks you cannot afford to make your own hinges. Buy them from us.

Third, the latches are of pressed steel, and cover width of flask. These latches can be furnished in either hook or folding latch; if not specified, we use the hook latch.

When ordering specify whether folding or hook latch is wanted.

**Price Each, \$9.00.**

**Page 100**

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## Snap Flask Trimmings

We can furnish complete sets of trimmings for all flasks listed.

Prices on application.

### OHIO SNAP FLASK TRIMMINGS

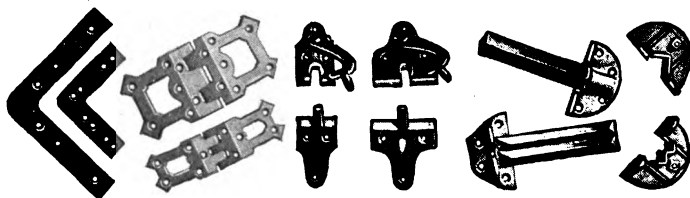


Fig. 309

Our Ohio Snap Flask Trimmings are particularly strong and practical in every detail.

Furnished in same size and prices as the Adams' Trimmings listed below, except that double-V pin is furnished with this set instead of half-round.

310

### ADAMS' SNAP FLASK TRIMMINGS

Pins 3, 3½, 4, 4½, 5, 5½ or 6-inch	\$1.00 pair	1¾-inch hinges.....	\$1.60 pair
Milled inside.....	1.60 pair	2¾-inch hinges.....	1.90 pair
Ears.....	1.60 pair	3¾-inch hinges.....	2.10 pair
Can furnish half-round shaped pins and ears, if specified, at same price as V-shaped.		Roll-over hinges.....	.75 pair
Match frame ears.....	.25 pair	Roll-over pins.....	.25 pair
Snap, including lug plate.....	.75 pair	Roll-over ears.....	.25 each
V Blocks for ears.....	1.60 doz.	Roll-over handles.....	.20 each
		Round pins, turned...	1.50 pair
		Ears for same, drilled,	.70 pair
Complete sets, any style.....	\$5.00 set		
Adams' Presser Boards.....	3.00 each		
Adams' Match Frames, any size.....	3.00 each		



## Buckeye Patented Snap Flask Guides

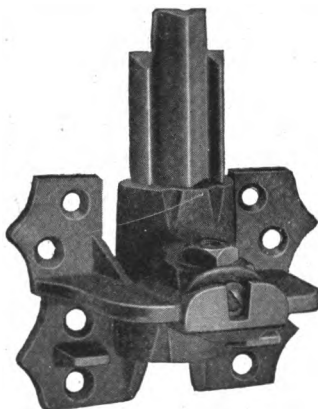


Fig. 311

### THE PINS

Each pin is practically three pins in one, and has twice the amount of wearing surface, giving double the life of other pins.

The three tongues on the pin prevent all rocking and shifting, while taking off and replacing the cope. These advantages are not to be found in any other snap flask pins now on the market. They positively prevent shifted work. The pins are machined perfectly, which guarantees an accurate and smooth sliding surface. The pins are open at the bottom. This feature allows all sand to drop through and not accumulate on the drag, saving the molders' time in removing same. The lugs by which the pins are fastened to the drag are extra large, and contain four screw holes in the three and four-inch, and six screw holes in the larger size pins. This insures good, firm attachment.

It is impossible to wear a shoulder on these pins, as the bottom of the slide extends beyond the wearing surface of the pins. This feature causes the pin to wear evenly its entire length. The surface of the four sides of the two smaller tongues equal the surface on the two sides of the larger tongue. This makes the wearing surface even in every respect. The pins have two finger lugs by which the drag can be removed from the cope, when desired. With the use of these pins the cope must go back upon the drag perfectly straight, which will cause the cores, if any, to line themselves with the prints. The three-part pins have all the advantages of other pins, plus the advantage of having the ears on the cope cheek and drag in the center of the flask, which causes the cope, cheek, and drag to perfectly balance in removing. Pins are made in three, four, five, six, seven, and eight-inch sizes and longer, when desired.

## THE SLIDES

The slides are also machined to conform perfectly with the pins. The slide is adjusted to the pin by means of a ball and socket arrangement, and is very quick in operation.

The wear is taken up by means of a brass screw, so arranged as not to hurt the molders' hands. The slides and pins are of all interchangeable sizes.

## THE EARS

The ears, like the pins, have extra large lugs for fastening same to the cope with four screws. Extra adjustable ears for match plates and boards, to fit these pins, supplied when desired.

Buckeye Patented Snap Flask Guides will save the original producers time in your foundry by perfect lifts. Let us send you a set on trial, subject to your approval, and if you do not pronounce them to be the best snap flask pin you ever saw, you can return same at our expense.

By sending us size of snap flask desired, we will quote prices on complete flasks with these pins attached. Prices on Buckeye Patented Snap Flask Guides for three-part flasks will be cheerfully furnished, if size of flask, depth of cheek, cope, drag, and the desired lengths of pin for cope and drag are given.

### PRICE PER SET COMPLETE

3-inch Pins.....	\$1.50
4-inch Pins.....	1.60
5-inch Pins.....	1.70
6-inch Pins.....	1.80
7-inch Pins.....	1.90
8-inch Pins.....	2.00

## MATCH LUGS

The Match Lugs or Slides, as shown in cut, are milled to conform to the pins. They have an extra large base for attaching to plate or board. They are furnished undrilled, so that they may be attached in any method best suited to conditions, by means of wood screws for wood boards, machine or cap screws for steel or metal plates, or by bolts, etc. Note round boss on plate to allow for tapping when necessary.



Fig. 312

One set consists of two lugs, or sufficient for one plate. They are interchangeable on all size pins for Buckeye Patent Snap Flask Guides.

Price per Set, \$0.60.

DIAMOND FLASK TRIMMINGS

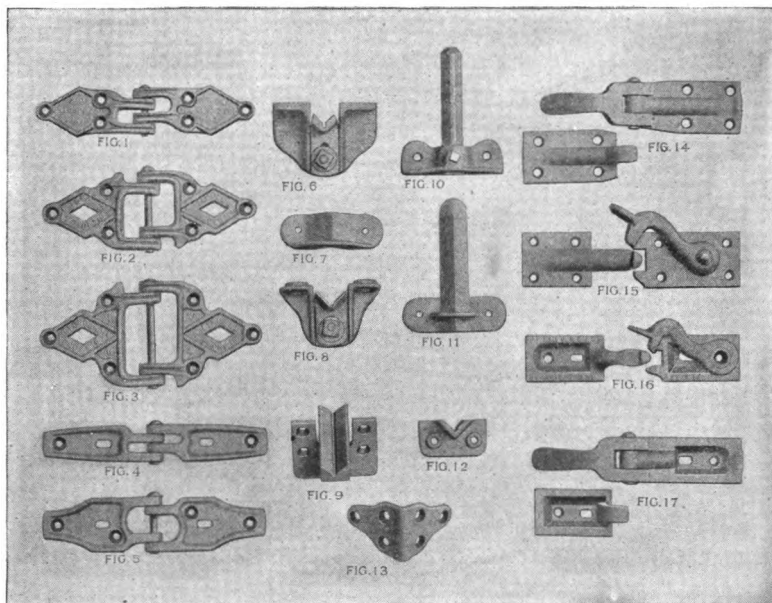


Fig. 313

PRICES

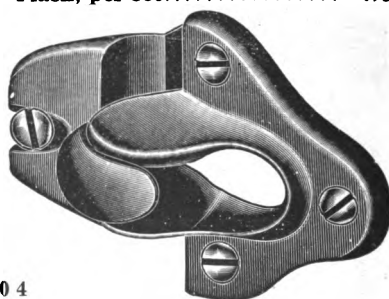
- Figs. 1, 2, 3—Hinges straight, 2"**  
wide, per set. . . . . \$0.95  
3" wide, per set. . . . . 1.25  
4" wide, per set. . . . . 1.60
- Figs. 4, 5—Hinges, tapered, 1½"**  
wide, per set. . . . . .65  
2" wide, per set. . . . . .95
- Figs. 6, 10—Milled Pins and Ad-**  
justable sockets, per set. . . . 2.50
- Figs. 7, 8, 11—Standard Pins**  
and Sockets, per set. . . . . .95
- Fig. 9—Milled Spring Match**  
Plate Guides, per set. . . . . .65

- Fig. 12—Plain Match Plate**  
Guides, milled, per set. . . . . \$0.35
- Fig. 13—Corner Irons, per set. . . . .** .35
- Fig. 14—Folding Latch for 1½"**  
Flask, per set. . . . . .75
- Fig. 15—Hook Latch for 1½"**  
Flask, per set. . . . . .75
- Fig. 17—Folding Latch for 1"**  
Flask, per set. . . . . .95
- Fig. 16—Hook Latch for 1"**  
Flask, per set. . . . . .95



**Fig. 314**  
**ROLL-OFF HINGE**  
**FOR SNAP FLASKS**  
Price, 45 Cents per Set

**Fig. 315**  
**ROLL-OFF HINGE**  
**FOR FLOOR FLASKS**  
Price per Set, 75 Cents



## Diamond Steel Slip Jackets

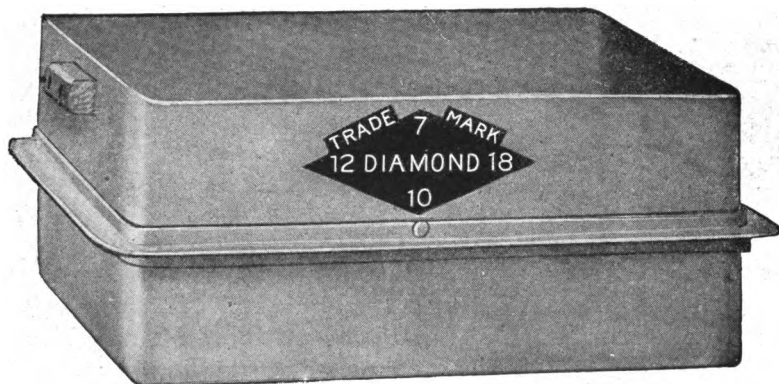


Fig. 316—Style E

**Style E—Braced all around**

**Style F—Braced on two sides**

Diamond Steel Slip Jackets are made in three styles: Style E, full braced; Style F, half braced; Style G, plain.

Jackets are made of 12-gauge steel, have wood handles, because of heat, but can be furnished with iron handles, when specified.

In ordering straight jackets, give inside measurement of flask. On tapered jackets, give size at parting line; also size at bottom, depth of cope, and drag, to insure perfect fit.

Unless specified to the contrary, all jackets will be made 1 inch less than depth of flask.



Fig. 317—Style G (Plain)

**Prices quoted on application. Give quantity and size.**

# AUTOMATIC ADJUSTABLE SNAP MOLD JACKET

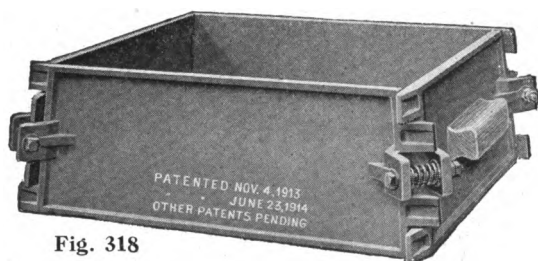


Fig. 318

The Automatic Adjustable Jacket with flexible corners is beyond doubt revolutionizing snap molding, giving wider range, insuring certainty of results, and greater accuracy of castings.

This jacket adjusts itself automatically to molds of different tapers, and conforms to irregularities in shape, either in length or in width, or in side or corner angles, giving perfect support to mold.

Size of Jacket	Depth of Jacket						Size of Jacket	Depth of Jacket					
	5	6	7	8	9	10		5	6	7	8	9	10
10x10	\$5.00	\$5.50	\$6.00	\$6.65	\$7.15	\$7.75	13x13	\$5.75	\$6.50	\$7.25	\$8.00	\$9.00	\$10.00
10x11	5.15	5.65	6.25	6.90	7.40	8.15	13x14	5.90	6.65	7.40	8.40	9.40	10.40
10x12	5.25	5.90	6.40	7.00	7.65	8.50	13x15	6.00	6.90	7.65	8.65	9.75	10.75
10x13	5.40	6.00	6.65	7.25	8.00	8.90	13x16	6.25	7.00	7.75	9.00	10.00	11.15
10x14	5.50	6.15	6.90	7.50	8.25	9.25	13x17	6.40	7.15	8.15	9.25	10.40	11.50
10x15	5.65	6.40	7.00	7.75	8.65	9.65	13x18	6.50	7.40	8.40	9.50	10.75	11.90
10x16	5.75	6.50	7.25	8.00	9.00	10.00	13x19	6.65	7.50	8.65	9.90	11.15	12.40
10x17	5.90	6.65	7.40	8.40	9.40	10.40	13x20	6.75	7.65	8.90	10.15	11.50	12.75
10x18	6.00	6.90	7.65	8.65	9.75	10.75	13x22	7.00	8.15	9.40	10.75	12.15	13.50
10x19	6.25	7.00	7.75	9.00	10.00	11.15	13x24	7.25	8.50	10.00	11.40	12.90	14.25
10x20	6.40	7.15	8.15	9.25	10.40	11.50	14x14	6.00	6.90	7.65	8.65	9.75	10.75
11x11	5.25	5.90	6.40	7.00	7.65	8.50	14x15	6.25	7.00	7.75	9.00	10.00	11.15
11x12	5.40	6.00	6.65	7.25	8.00	8.90	14x16	6.40	7.15	8.15	9.25	10.40	11.50
11x13	5.50	6.15	6.90	7.50	8.25	9.25	14x17	6.50	7.40	8.40	9.50	10.75	11.90
11x14	5.65	6.40	7.00	7.75	8.65	9.65	14x18	6.65	7.50	8.65	9.90	11.15	12.40
11x15	5.75	6.50	7.25	8.00	9.00	10.00	14x19	6.75	7.65	8.90	10.15	11.50	12.75
11x16	5.90	6.65	7.40	8.40	9.40	10.40	14x20	6.90	7.90	9.15	10.50	11.75	13.15
11x17	6.00	6.90	7.65	8.65	9.75	10.75	14x22	7.15	8.40	9.75	11.15	12.50	13.90
11x18	6.25	7.00	7.75	9.00	10.00	11.15	14x24	7.40	8.75	10.25	11.75	13.15	14.65
11x19	6.40	7.15	8.15	9.25	10.40	11.50	15x15	6.40	7.15	8.15	9.25	10.40	11.50
11x20	6.50	7.40	8.40	9.50	10.75	11.90	15x16	6.50	7.40	8.40	9.50	10.75	11.90
11x22	6.75	7.65	8.90	10.15	11.50	12.75	15x17	6.65	7.50	8.65	9.90	11.15	12.40
12x12	5.50	6.15	6.90	7.50	8.25	9.25	15x18	6.75	7.65	8.90	10.15	11.50	12.75
12x13	5.65	6.40	7.00	7.75	8.65	9.65	15x19	6.90	7.90	9.15	10.50	11.75	13.15
12x14	5.75	6.50	7.25	8.00	9.00	10.00	15x20	7.00	8.15	9.40	10.75	12.15	13.50
12x15	5.90	6.65	7.40	8.40	9.40	10.40	15x22	7.25	8.50	10.00	11.40	12.90	14.25
12x16	6.00	6.90	7.65	8.65	9.75	10.75	15x24	7.65	9.00	10.50	12.00	13.50	15.00
12x17	6.25	7.00	7.75	9.00	10.00	11.15	16x16	6.65	7.50	8.65	9.90	11.15	12.40
12x18	6.40	7.15	8.15	9.25	10.40	11.50	16x17	6.75	7.65	8.90	10.15	11.50	12.75
12x19	6.50	7.40	8.40	9.50	10.75	11.90	16x18	6.90	7.90	9.15	10.50	11.75	13.15
12x20	6.65	7.50	8.65	9.90	11.15	12.40	16x19	7.00	8.15	9.40	10.75	12.15	13.50
12x22	6.90	7.90	9.15	10.50	11.75	13.15	16x20	7.15	8.40	9.75	11.15	12.50	13.90
12x24	7.15	8.40	9.75	11.15	12.50	13.90	16x22	7.40	8.75	10.25	11.75	13.15	14.65
							16x24	7.75	9.25	10.75	12.40	13.90	15.40

When ordering Jackets, give size of Snap Flask at parting, depth of cope, and depth of drag, and amount of taper on sides of flask.

Prices of larger and special sizes quoted upon application.

## Sterling Style "A" Steel Flasks



Fig. 319

An excellent flask for the general run of small and medium-sized work. Can be built up to any number of sections desired. All style "A" flasks are drilled interchangeable, so that any cope will fit any drag, and can be used for multiple molding.

Furnished in any size from 10"x10" to 20"x20", with copes, cheeks, and drags 2½" to 8" deep.

## STERLING STYLE "G" STEEL FLASKS



Fig. 320

The Style "G" flask is practically identical with the Style "A" shown above. The only difference lies in the fact that the corners are specially reinforced. This adds greatly to the rigidity of the flask, and allows for a larger range of sizes.

Furnished in any size from 12"x12" to 24"x24", with copes, cheeks, and drags 2½" to 8" deep.

**Prices on application.**

### STERLING STYLE "H" STEEL FLASKS



Fig. 321

The Style "H" is essentially a brass molders' flask. Equipped with four pins, and drilled with great accuracy. This flask is interchangeable; any cope will fit any drag. An ideal flask for match plate work.

**Can be furnished with end pouring holes, if desired, at no additional charge.**

Copes and drags furnished in sizes from 12"x12" to 14"x18", and 2½" to 7" deep.

### STERLING STYLE "K" STEEL FLASKS



Fig. 322

The Style "K" flask is popular for molding machine work, because of its light weight and ability to stand heavy molding machine pressures. Note the broad pin lug and handy lifting handles.

Copes and drags are furnished in sizes from 12"x12" to 14"x18", and from 2½" to 8" deep.

**Prices on application.**

### STERLING STYLE "B" STEEL FLASKS

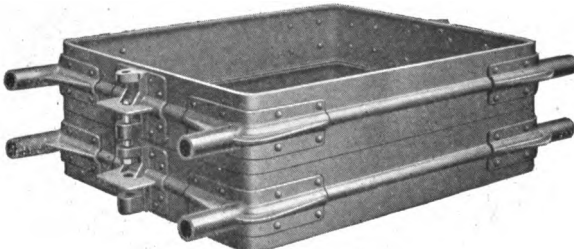


**Fig. 323**

The Style "B" flask is admirably suited to all circular work. Like all Sterling flasks, it is guaranteed absolutely rigid and proof against molding machine pressures. Drilled interchangeable for three-part or multiple molding.

Furnished in sizes 12" to 28" diameter, and with copes, drags, and cheeks from 2½" to 8" deep.

### STERLING STYLE "GX" STEEL FLASKS



**Fig. 324**

A very excellent flask for light floor work or medium-sized molding machine work. Equipped with double pin lugs, and drilled absolutely interchangeable. Any number of sections may be stacked to form any desired depth.

Made in sizes 14"x14" to 24"x24", and in any desired depth of cope and drag.

**Prices on application**



### STERLING STYLE "L" STEEL FLASKS

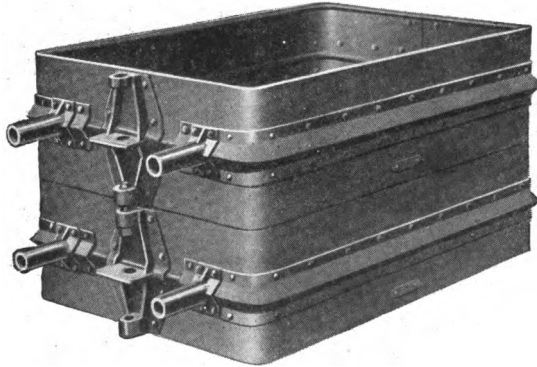


Fig. 325

This flask is designed for heavy floor and jar-machine work. It is specially reinforced with a flanged angle, which gives it the required strength and rigidity to stand extra hard service. Furnished with bars, if required.

Made in widths of from 12" to 30" and in lengths of from 18" to 60". Copes, cheeks, and drags made in depths of from 3" to 16".

### STERLING STYLE "BL" STEEL FLASKS

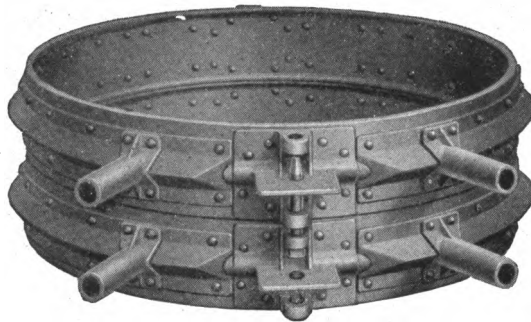


Fig. 326

The best flask on earth for large machine or floor work of circular nature. Reinforced with heavy flanged angle, equipped with double lug malleable pin holders, and drilled interchangeable. Furnished with bars, if required.

Furnished in diameters ranging from 18" to 52", and in any desired depth of copes, cheeks, and drags.

**Prices on application.**

BARNETT IRON FLASKS

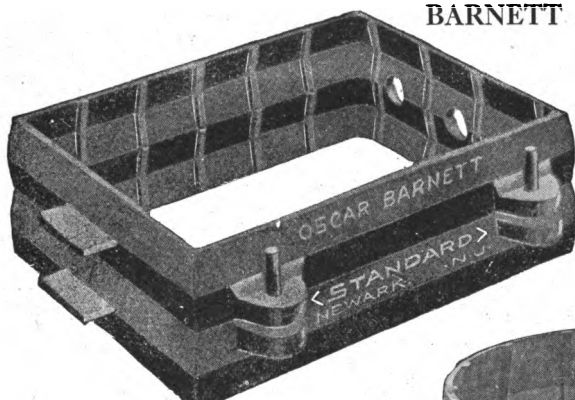


Fig. 327

CIRCULAR  
FLASK, BEVELED



Fig. 328

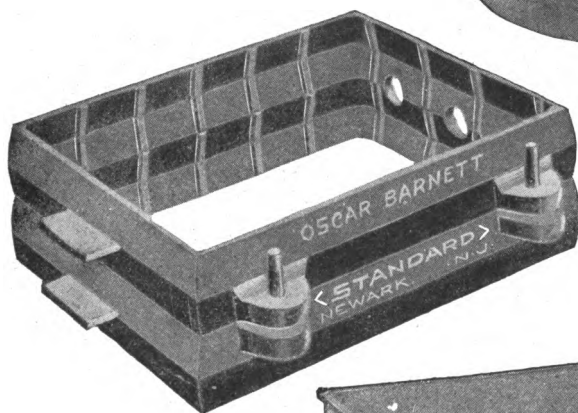


Fig. 329

STRAIGHT SIDE  
PLAIN  
Beads at Top, Bottom,  
and Parting

REGULAR  
PERPENDICULAR  
RIBBED, BEVELED

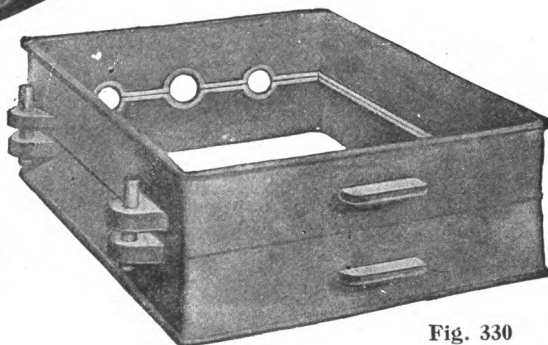


Fig. 330

# THE BUCKEYE PRODUCTS COMPANY

## BARNETT CAST IRON FLASKS

PRICE LIST OF BEVELED, PLAIN, AND PERPENDICULAR RIBBED.  
MEASURE INSIDE AT PARTING.

Width, Inches	Length, Inches	Depth of Whole Flask, Inches	Price Per Flask	Width, Inches	Length, Inches	Depth of Whole Flask, Inches	Price Per Flask
8	8	5	\$5.50	12	16	5	\$5.00
9	13	4	6.00	12	16	6	6.00
10	12	5	6.00	12	16	8	7.00
10	15	5	6.00	12	17	7	6.50
10	15	6	6.00	12	30	6	9.50
10	16	5	6.00	12½	18	5	6.00
10	17	8	7.00	12½	18	6	6.50
10	18	6	6.50	12½	18	8	8.00
11	14	4	6.00	12½	18	12	10.00
11	14	5	6.00	12½	20½	5	6.50
11	14	6	6.00	12½	20½	8	8.50
11	14	8	6.50	12½	20½	10	10.50
11	15	5	6.00	13	16	5	7.00
11	16	5	6.00	13	16	6	7.50
11	16	6	6.00	13	16	8	8.00
12	12	6	6.00	16	26	8	12.00
12	12	8	6.50	16	30	6	11.00
14	18	6	7.50	16	48	6	15.00
14	18	8	8.50	16	60	8	27.00
14	18	12	10.00	17	17	5	8.50
14	20	6	8.00	18	18	6	9.00
14	20	8	9.00	18	18	8	10.00
14	22	6	9.00	18	20	6	10.00
14	24	5	10.00	18	23	6	11.00
14	24	6	10.00	18	24	10	12.00
14	24	12	13.00	18	26	6	11.00
14	28	12	15.00	18	28	5	12.00
14	30	5	11.00	18	30	10	14.00
14	30	6	12.00	18	36	18	30.00
15	18	5	7.50	18	39	6	20.00
15	18	8	8.50	19	20	7	11.00
15	22	8	11.00	19	21	5	11.00
15	24	8	11.00	20½	20½	6	12.00
16	16	6	8.50	20½	20½	8	12.00
16	21	5	9.00	21	25	6	12.50
16	22	6	10.00	22	36	6	20.00
16	24	8	12.00	22	38	24	60.00
16	24	10	13.00	24	24	6	15.00
16	26	5	10.00	24	24	8	18.00
12	14	6	6.00	24	48	6	24.00
12	14	8	6.75	30	32	6	24.00

# THE BUCKEYE PRODUCTS COMPANY

## BARNETT CAST IRON FLASKS

### PRICE LIST.

STRAIGHT SIDE, BEADS AT TOP, BOTTOM AND SIDES.  
MEASURE INSIDE AT PARTING.

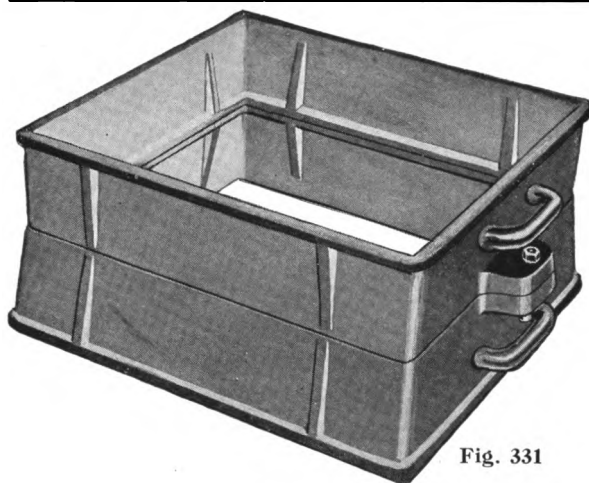
Width	Length	Depth Over All	Price	Width	Length	Depth Over All	Price
7	11	4	\$5.50	12	15	5	\$6.50
7	14	4	5.50	12	16	4	6.00
7½	12	4	5.50	12	16	6	6.50
8	8	6	5.50	12	18	4	6.00
8	12	4	5.50	12	18	5	6.50
8	14	4	5.50	12	18	6	6.50
8	16	4	5.50	12	20	5	7.00
8½	8½	5	5.50	12	18	8	8.00
9	11	3	5.50	12½	18	5	6.50
9	12	8	6.00	12½	18	6	6.50
9	19	4	6.00	12½	18	6½	7.00
9½	16½	5½	6.00	12½	19	5	6.50
10	12	3	6.00	14	16	6	6.50
10	14	3	6.00	14	18	5	7.00
10	14	4	6.00	14½	14½	6	7.00
10	16	3½	6.00	14½	14½	8	7.50
10	16	6	6.50	15	20	6	10.00
10	21	5	7.00	15	22	6	11.00
10	24	5	12.00	15	25	8	12.00
11	14	4	6.00	16	20	5	10.00
11	14	5	6.00	17	18	6	17.00
11	16	5	6.50	18	19	5	11.00
11½	14	12	9.00	18	22	8	12.50
11½	16	4	6.00	18	24	10	14.00
11½	17	6	6.50	22	24	6	14.00
12	12	5	6.00	23	28	8	15.00
12	14	6	6.50	26	38	10	20.00
12	14	8	7.00				

## CIRCULAR CAST IRON FLASKS

### BEVELED AND RIBBED.

Diameter, Inches	Depth Over All, Inches	Price
9½	4	\$8.50
9½	6	9.00
11	7½	10.00
14½	5	10.00
14½	9	12.00
16	12	15.00

Prices on any other sizes desired furnished on application



CAST IRON  
MOLDING  
MACHINE  
FLASKS

Fig. 331

MEASURE INSIDE AT PARTING

Width	Length	Depth Over All	Price	Width	Length	Depth Over All	Price
12	12	8	\$7.00	14	16	8	\$8.00
12	12	12	9.00	14	16	(3 end holes)	
12	16	8	8.00	14	16	12	10.50
12	16	12	10.00	14	16	16	13.00
12	16	16	12.00	14	16	20	16.00
12	16	20	14.00	14	18	5	7.00
12	16	30	21.00	14	22	8	13.00
12	18	8	8.50	14	22	12	15.00
12	22	8	11.50	14½	16	8	8.00
12	22	16	18.00	14½	16	10	9.50
12	30	8	15.00	14½	16	12	10.50
12	30	12	19.00	16	16	8	9.00
12	30	36	42.00	16	16	12	11.00
12½	14½	5	6.50	16	22	12	16.00
12½	17½	8	8.50	16	22	18	19.00
12½	18	8	8.50	16	26	7	15.00
13	18	5	7.50	16	26	10	20.00
13	18	6	8.50	16	26	16	30.00
13	18	8	10.00	16	28	12	15.00
13	18	12	11.00	16	30	8	17.00
13	18	14	11.00	16	30	12	22.00
13	19	6½	8.00	16½	21	12	13.00
13	19	8	9.00	16½	21	16	16.00
13	20	8	9.50	18	21	12	13.50
14	14	8	8.00	18	22	18	20.00
14	14	12	10.00	18	22	30	30.00
14	16	6	7.00	18	30	12	21.00
14	16	8	8.00	18	30	16	24.00

In addition to sizes above, can be furnished from 10x16x6 up to 30x30x12.

## Sterling Foundry Flask Pins

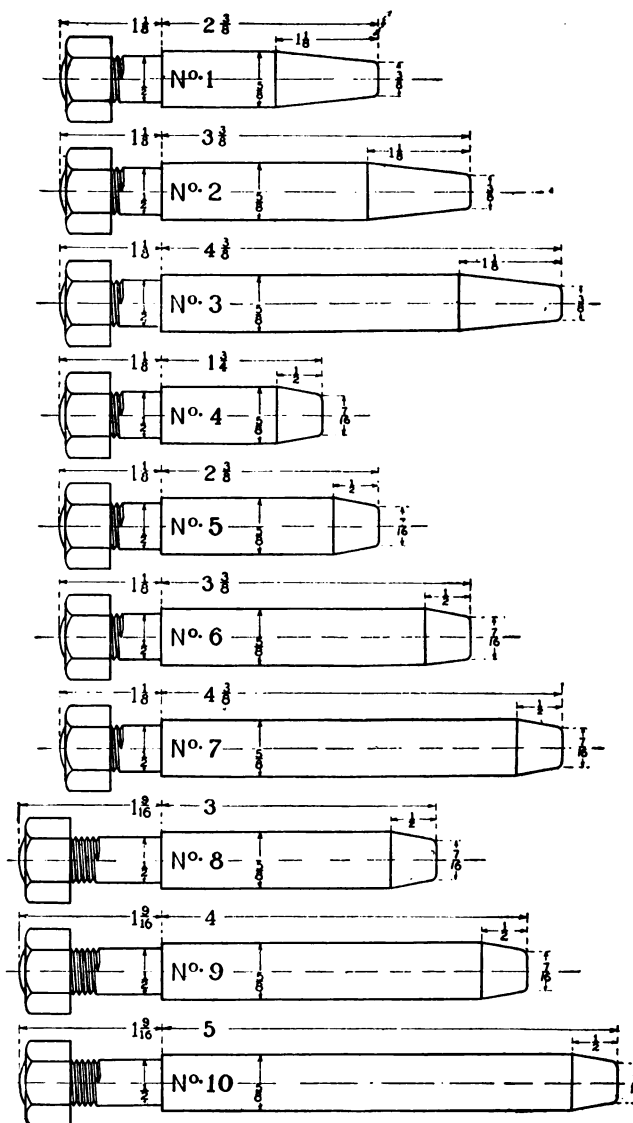


Fig. 332

**A complete stock always on hand. Prompt shipment guaranteed.**

**Prices on application.**

## PERFORATED IRON FLASK PLATES

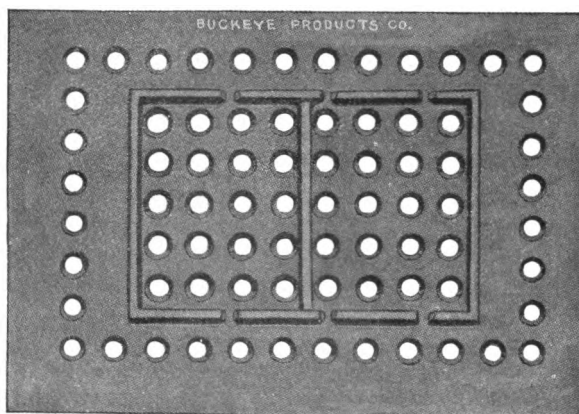


Fig. 333

Our Perforated Iron Flask Plates are made of best obtainable gray iron. Are reinforced on bottom to give additional strength. Following sizes always carried in stock:

12½ inches wide, 15½ inches long .....	Price, \$1.75
13½ inches wide, 19 inches long .....	Price, 2.50

Other sizes quoted on request. Advise size and quantity wanted when writing for prices.

## WOOD FLASK BOARDS

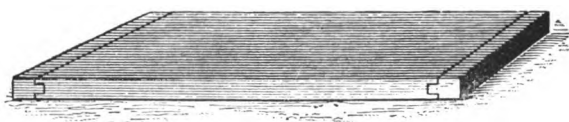


Fig. 334

Our Wood Flask Boards are made of hardwood throughout, and are 1⅛ inches thick. End pieces are tongued and grooved. Any size to order.

**Prices on application**

**335**

## UPSETS

We are prepared to furnish any size or style of steel upsets for iron flasks. Give full description of size wanted when requesting prices.

**Prices quoted on request.**

## The "Champion" Molders' Bench

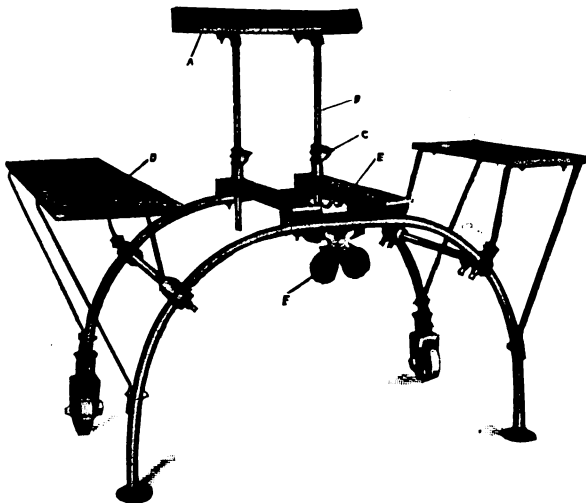


Fig. 336

### Fitted with Pneumatic Vibrator

The "Champion" Molders' Bench is designed and built for the Pneumatic Vibrator, but will be furnished with or without it.

The bench is in itself unique in design, workmanship, and material used. The bow-frame is wrought iron pipe. Size, outside diameter,  $1\frac{3}{8}$  inches. The braces are of the same material, but one size smaller. The construction affords the greatest strength, eliminates weight, leaves the least chance for the sand to lodge, and, by noting the cut, it will be observed that not a brace is placed in the way of the workman's shovel. The frame is guaranteed to be perfectly rigid, as if cast in one piece. The skids are guaranteed to carry 1,000 pounds, and the side shelves 200 pounds each. The weight of the Bench and Vibrator is 125 pounds.

The skids are 30 inches from the floor; if specified, any other height will be furnished without extra charge. The Brackets ("C") are adjustable, and afford a convenient place to set the cope or match plate. Also the Tool Shelf ("A") may be set at any desired height. The Side Shelves ("D") are interchangeable; one is 3 feet and the other 2 feet long; both are hardwood. The wheels are 4 feet apart, so that the machine carries nicely astride the sand.

("F") Pneumatic Vibrator (see page 118).



## CHAMPION VIBRATOR

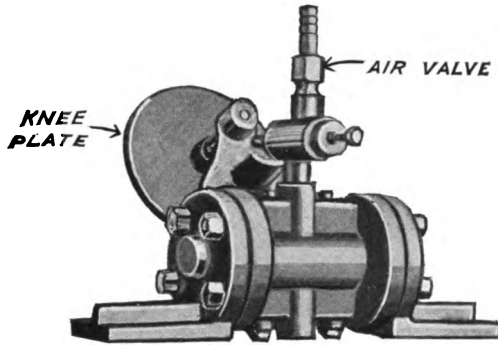


Fig. 337

The Pneumatic Vibrator "F" is fitted with an adjustable valve, and may be changed and set to run with a heavy or light vibration, as the work may require. The valve is opened by the knee.

The "Champion" Vibrator is especially strong, and has great merit. It is

made with double inlets and ports, which insures positive action. Made in two sizes.

### SIZES AND PRICES

Combination Bench and Pneumatic Vibrator, complete as shown.....	\$40.00
Bench complete as shown, without Pneumatic Vibrator.....	25.00
Champion Vibrator, size 1¼ inch.....	15.00
Champion Vibrator, size 1¾ inch.....	18.00

## Buckeye Vibrators

It has remained for us to place before the foundry trade an air vibrator which has every requisite necessary to make it a perfect working device for the purposes for which it is intended. The illustrative and descriptive matter as contained herein will convince the reader that the "Buckeye" Air Vibrator is a device which has absolutely no weak point, with the result that when using it there is a **saving of expense and annoyance.**

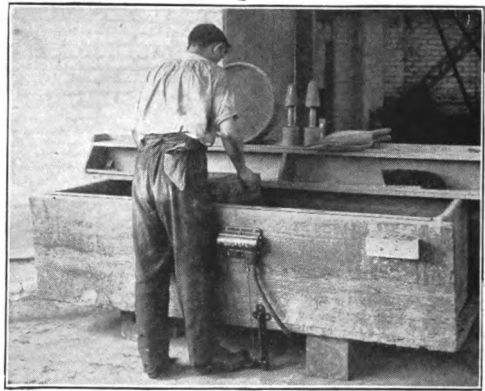


Fig. 338

We are well aware of the fact that when introducing a new article, the old proverb "Seeing is believing" is applicable to a good portion of the trade, and while we attempt to show by our illustrative and descriptive matter that the "Buckeye" Vibrator is just what we claim it to be,

we nevertheless would forward one for actual test, upon the request of a prospective purchaser.

## FEATURES

The "Buckeye" Vibrator is a device which is absolutely air-tight and jar-proof, by reason of the manner of its construction, differing from others in that a heavy plug is used in each of the two ends of the body of the vibrator instead of a cap or flat-end piece (fastened with machine screws), either of the latter being in constant danger of becoming loosened through the jarring of the piston. The plugs in the "Buckeye" Vibrator are screwed into the body to a considerable depth, and to further prevent any possibility of them becoming loosened, a screw is inserted into each plug through the body of the vibrator.

The air-valve of the "Buckeye" Vibrator is located in the body of the vibrator, which makes it unnecessary to have pipe connections between the vibrator and the air-valve, as is the case with other makes. Air pressure required, 40 pounds and up.

Every "Buckeye" Vibrator is fitted with a hose nozzle, which is the inlet of the compressed air, thereby avoiding pipe fitting, which would otherwise be necessary.

The "Buckeye" Vibrator is furnished in two styles, with either knee or foot pedal. The foot pedal vibrator is especially adapted for brass foundry tubs or iron foundry benches or bucks, inasmuch as the molder can stand erect when operating the vibrator, allowing him to use the combined strength of his body and arms, when handling the molds.

Inasmuch as the complete mechanism of the "Buckeye" Vibrator is concentrated in the body of same, the application of the vibrator to the tub is very simple, requiring a few screws to fasten it. The connecting rod between the vibrator and the foot-pedal is furnished in the proper length, merely necessitating the "hooking up" of same.

The "Buckeye" Vibrator, as can readily be determined from the features as heretofore explained, is of simple but durable construction. The material used is of highest grade, thereby insuring great strength.

In connecting "Buckeye" Vibrators, we recommend that a small valve be placed on the air line, in a convenient place for the molder to operate the air by reducing or increasing the velocity of same to regulate the vibration according to the lift or class of work he is doing.

"Buckeye" Vibrators prevent the necessity of attaching vibrators to each plate or match where used.

"Buckeye" Vibrators are sold subject to your approval. Order one to-day, to be sent on trial.

<b>Type H for Tubs, etc. . . . .</b>	<b>\$18.00</b>
<b>Type L for Benches, Bucks, etc . . . . .</b>	<b>18.00</b>

# L. & A. ELECTRIC VIBRATOR

Made in Four Sizes and Two Styles

This vibrator requires no expensive machinery to operate it. It is merely attached to a light socket and requires no expert to install it.

The simplicity of this machine and the excellence of its performance has established for it a reputation as a time saver, and its operation is so inexpensive as to make it a necessity, even where air is installed.

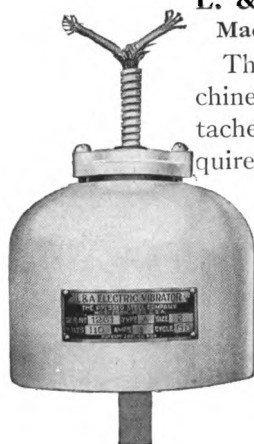


Fig. 339  
Style "A" (For Plates)

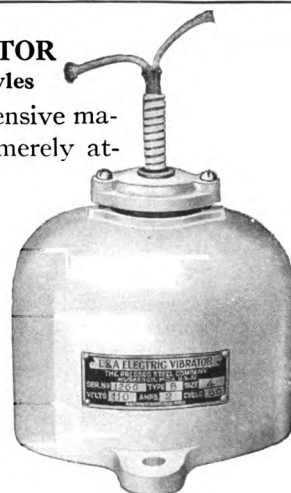


Fig. 340  
Style "B"  
(For Tubs, Benches or Machines)

The difference in style is: Style "A" made with one lug for plate work, and Style "B" made with two ears for tub, bench, and machine use. Style "A" is made in sizes 1, 2, 3, and 4. Style "B" is made in sizes 3 and 4. On account of its construction, this vibrator can be used with alternating current only. It is built to operate on 100, 110, 120, 200, 210, or 220 volts, either 25-, 30-, 40-, 50-, or 60-cycle current.

All moving parts are enclosed and thoroughly protected from dust and dirt. No oiling or adjusting is required at any time.

The vibrator is equipped with 6 feet of armored cable, and is so installed as to enable the operator to throw the switch on or off by pressure or release of the knee. This feature is a time saver, and gives the operator the full use of his hands at all times. It is quickly and easily attached to match on pattern plates, or to the molder's tub or machine.

Not a cent is paid for fancy "talking points." Right construction and absolute efficiency are what you pay for and what you get.

## INFORMATION AND PRICES

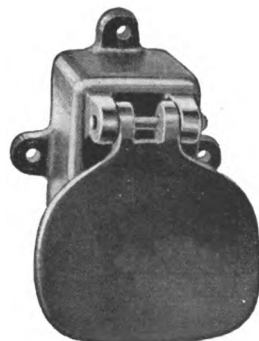


Fig. 341

	Weight, Size Pounds	Cost Per Day to Operate	Equivalent to Air Vibrator	Price
1	2 1/4	6 cents	1/2"	\$10.00
2	2 3/4	7 cents	5/8" to 3/4"	12.00
3	3 3/4	8 cents	1" to 1 1/8"	14.00
4	4 1/4	10 cents	1 1/4" to 1 1/2"	16.00
Knee Switch.....				2.50

Above cost of operation is based on Molder Working eight hours a day and the Vibrator one minute in every four, the basis of cost per kilowatt being 5 cents.

We send these Vibrators on ten days trial.

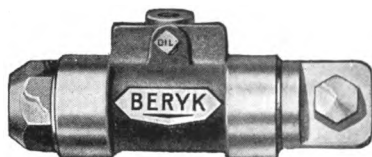


Fig. 342

## Air Vibrators

### THE BERYK VIBRATOR

The Beryk Vibrators are made of the best materials to stand the hardest service. All work is rigidly inspected, and each vibrator has a final test the day it

is shipped. Made in sizes from  $\frac{1}{2}$  inch to 3 inches.

$\frac{1}{2}$ -inch	Price, \$9.00
$\frac{3}{8}$ -inch	Price, 9.50
$\frac{3}{4}$ -inch	Price, 10.00
1 -inch	Price, 16.00
$1\frac{1}{4}$ -inch	Price, 20.00
$1\frac{3}{8}$ -inch	Price, 24.00
2 -inch	Price, 54.00
3 -inch	Price, 115.00

### HAUSFELD VIBRATOR



Fig. 343

The Hausfeld Hand Match Plate and Pattern Board Air Vibrators cannot be recommended too highly, as they can be applied equally as well to steel or wood plates, being bolted to the handle of the steel plates (see Fig. 345), where it may be used as one of the handles or can be screwed onto the edge of wood pattern plates (see Fig. 344), as the ordinary plates used will serve the purpose.

A conveniently-operating sliding valve is provided in the same casting with the vibrator for starting or stopping.

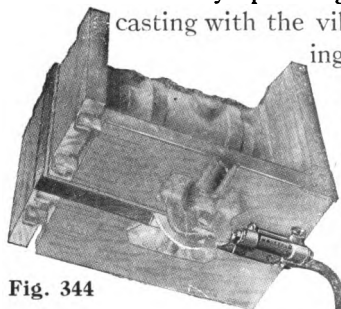


Fig. 344

Air pressure required for this vibrator from 40 lbs. on up, and can be used with or without knee valve. The body of this vibrator is

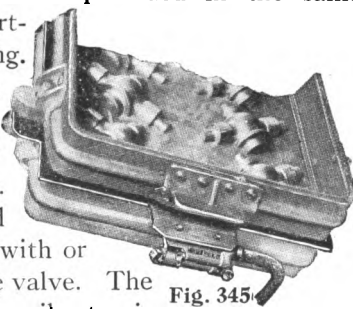


Fig. 345

made of a hard bronze composition, and the piston and end plugs of hardened tool steel.

**Price Each, \$6.00.**

### BRASS KNEE VALVE

These Knee Valves are made of the best quality of bronze, and are guaranteed to be perfect in action. They are a great help on match-plate and other work where the molder has to use both hands to make the lift.

Good Knee Valves give a full flow of air for a sure start. Our valves are good—very good.

Price, \$5.50.

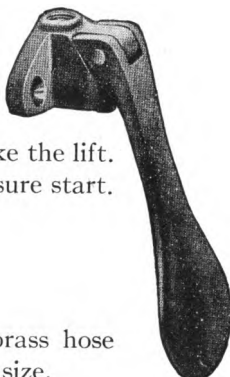


Fig. 346

### 346 A HOSE NIPPLES

We are in a position to furnish any size of brass hose nipples on short notice. Write for prices, advising size.

### Hard Iron Stars

We can furnish all sizes of stars from  $\frac{3}{4}$ " to  $2\frac{1}{4}$ " in both five and six point for tumbling and cleaning of castings. Give size, style, and quantity wanted when writing for quotations.

Prices on application.



Fig. 347—5-Point



Fig. 348—6-Point

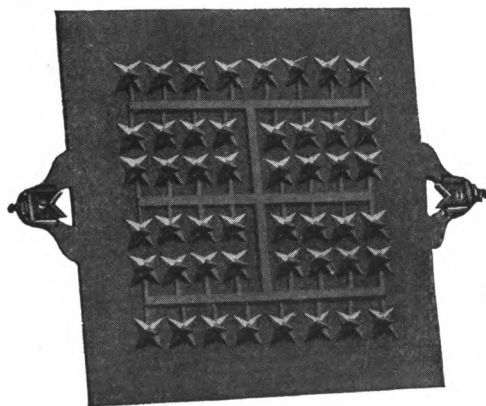


Fig. 349

### MILLING STAR PLATES

A fine opportunity to break in your new help by starting them molding milling stars. A quick and cheap method of making milling stars for the cleaning of castings. Made only for 12"x15" flasks.

- 6-Point—1 inch, sharp, for light hardware and stove castings. 82 to plate.
- 5-Point—1  $\frac{1}{4}$  inch, flat, sharp, for steel castings. 48 to plate.
- 6-Point—1  $\frac{1}{4}$  inch, sharp, for light castings. 66 to plate.
- 6-Point—1  $\frac{1}{2}$  inch, sharp, for light auto castings. 60 to plate.
- 6-Point—1  $\frac{3}{4}$  inch, medium sharp, for lighter grades. 36 to plate.
- 6-Point—2 inch, blunt, for medium heavy castings. 26 to plate.
- 6-Point—2  $\frac{1}{2}$  inch, blunt, for heavy castings. 20 to plate.

Price each, any size Star.....\$18.00

### STEEL PATTERN PLATES

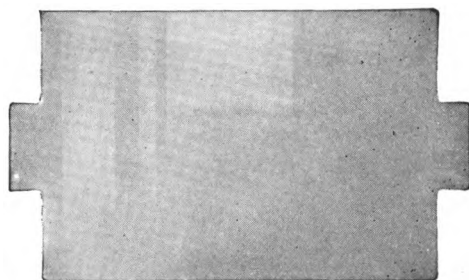


Fig. 350

The universal use of Molding Machines in foundries and the production of duplicate castings has created a demand for an economical plate for supporting the pattern in the machine. Such a plate must be of equal thickness, stiff and strong, and perfectly level or flat. It must be free from pit marks, kinks, and surface imperfections.

With these requirements in view, we are furnishing flattened ground steel plates that have the necessary qualities, the process of flattening is thorough, superior to rolling, which does not obtain the effect desired. The plates can be made any required thickness, length, and width.

For brass foundries, makers of valves, fittings, etc., and small iron castings, where a large number of patterns are in constant use, our plates will be found an immense saving.

Prices on application.

### BARNETT STEEL PLATES

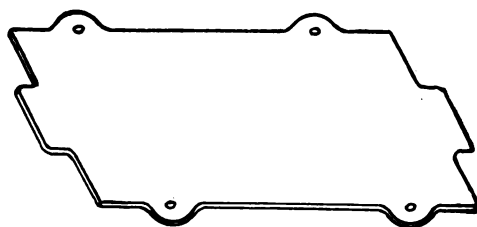


Fig. 351

### FOR MOUNTING PATTERNS

Straightened and bored with templates to interchange with Barnett Flasks.

Prices on application.

## Patent Automatic Improved Rosin Mills

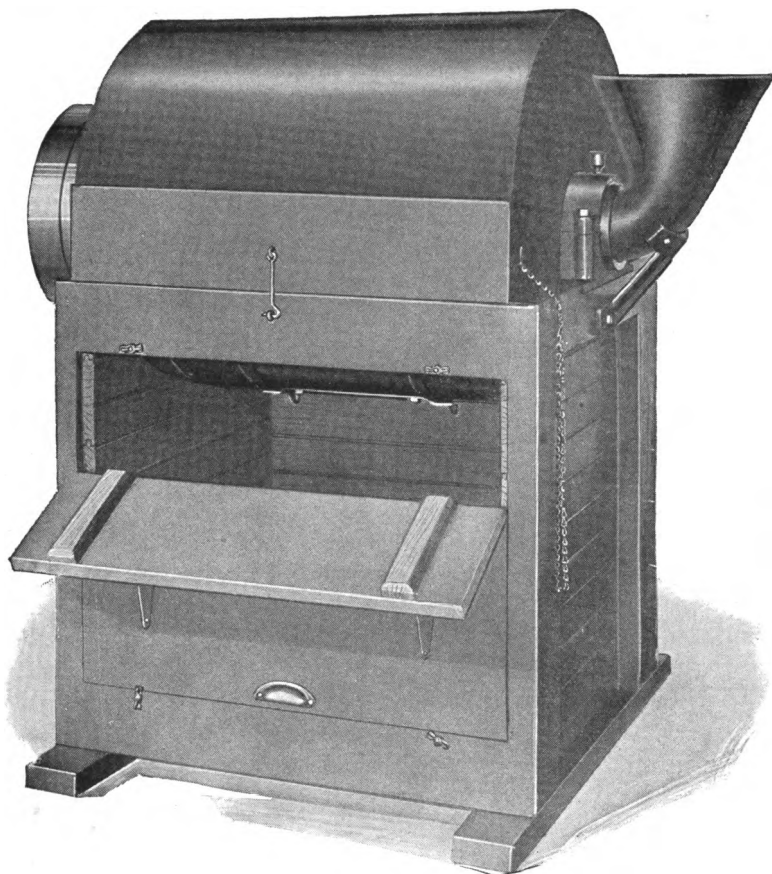


Fig. 352

The above cut represents our Automatic Improved Rosin Mill. The improvement in this mill is the continuous feed, which consists of a hollow trunnion on one side of the mill, with feed funnel attached, including necessary bracket and large bearing. With this arrangement it is not necessary to stop machine for loading, as in the old type.

This machine not only grinds rosin quicker, but much better, and does away with the wasting of material when screened by hand. These mills are made in two sizes, each machine equipped with tight and loose pulley, 15" diameter, 2½" face.

No. 1—Capacity per day, 1 to 1½ barrels.....	Price, \$120.00
No. 2—Capacity per day, 1½ to 2 barrels.....	Price, 130.00

## Combs Gyratory Electric Foundry Riddle TYPE V



Fig. 353

**Remember,  
"Well Riddled Is Half  
Cast"**

The Combs Gyratory Foundry Riddle is the only really portable riddle made. It weighs about 100 pounds. A man can pick it up and carry it wherever needed, whether on the molding floor or in the coreroom. Just suspend it from any convenient support, screw the attachment plug into any lamp-socket, and it is ready for business.

The sieve is 20 inches in diameter, and is held in place by an improved clamping device, which enables the operator to remove the sieve, dump,

and replace it in less time than it takes to tell about it. There are no legs to get in the way of the shovel. Run a wheelbarrow right under it if you wish. When placed between two molding machines, the Combs Riddle will supply each with plenty of sand. It can be suspended over a flask, and the sand riddled right where it is wanted.

Brass foundries often suspend the riddle from a trolley running on a wire cable stretched parallel with the line of molders. The machine is pushed from one point to another as wanted, and as many as twenty men supplied with sand.

Sent on 30 days' trial. We pay freight both ways if not retained.

Price, Direct Current .....	\$137.50
Price, Alternating Current .....	150.00





Fig. 354—Type C. R.

### TYPE CS

This type of riddle is in many respects the same as our type C. R. Riddle; the great difference lies in the sieve. With this machine two separations are made, the screened sand passing down through the sieve and the refuse falling off to one side.

Motor one-third H. P., totally enclosed; can be driven from lamp socket.

Sieve is 24 inches square, and readily removed by loosening two nuts.

Gyrations are approximately 2 inches.

Weight, about 230 pounds.

Types C. R. and C. S. are portable, and will work properly when suspended from anything that will sustain the weight. Unlike other machines, these have no obstruction underneath.

**Sent on 30 days' trial. We pay freight both ways if not retained**

	Type C. R.	Type C. S.
Price, Direct Current.....	\$187.50	\$206.25
Price, Alternating Current.....	200.00	218.75

## COMBS GYRATORY ELECTRIC FOUNDRY RIDDLES

### TYPE C R

This type of riddle was designed to meet the demand of foundries desiring a greater capacity than can be obtained from Type V Riddle (Fig. 353), and for those who prefer a machine having a gyration of about  $2\frac{1}{2}$  inches.

The motor is one-third H. P., totally enclosed, and can be driven from lamp socket.

Sieve is 24 inches in diameter, and easily removed. Dust-proof ball bearings are used. Weight, about 200 pounds.

This riddle not only sifts, but mixes as well, thus saving one turning of the sand.



Fig. 355—Type C. S.

## THE CHAMPION ELECTRIC SAND RIDDLE

### Interesting and Distinctive Features

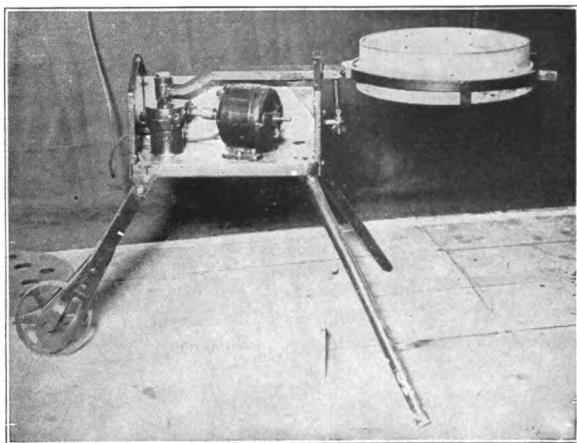


Fig. 356

The unequalled sand-sifting capacity of the Champion is due to a gyro-reciprocating motion. This tends to break the wet and hard lumps of sand which usually clog a riddle.

Equipped with a  $\frac{1}{4}$ -H. P. motor, it cannot be overloaded.

Owing to the truly portable feature, the Champion is indispensable for mixing core sand, facing, and for general foundry use.

The riddle is held rigid in a steel frame; no clamps to get out of order or screws to rust tight.

The Champion is of sturdy construction, being built entirely of steel and iron; will withstand hard usage.

It requires no special brackets or framework.

This machine will riddle as much sand in five minutes as a man can riddle by hand in one hour, and costs less than two cents an hour to operate.

**PORTABILITY.**—Moving the Champion from one place to another is accomplished by first raising the rear end of machine slightly, allowing the wheels to drop into place. It can then be moved like a wheelbarrow.

**CONSTRUCTION.**—The Champion Sand Riddle has a worm gear drive consisting of a cast-iron gear and steel worm, which has proven to be the most efficient means of transmitting power.

The crank and connecting bar are made of high-grade cast steel.

The motor and all working parts are entirely enclosed and thoroughly protected from sand and dust.

All friction parts are fitted with ball bearings, reducing the friction to a minimum.

A six-foot flexible cord and attachment plug is furnished with each machine, which can very easily be connected to any standard light socket.

Further information furnished on request. Shipped on 30 days' trial.

**Price: Alternating Current** ..... **\$157.00**  
**Direct Current** ..... **152.50**

## Hand or Belt Power Sand Sifter

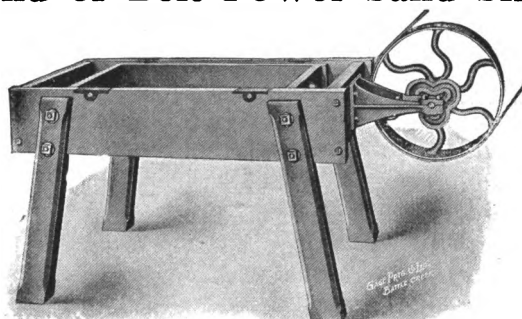


Fig. 357

This hand- or belt-power sand sifter has a greater capacity than five regular hand riddles.

The construction throughout is first class. The legs and sides are made of selected lumber. The screen is made of heavy galvanized wire and is galvanized after woven.

Furnished with three screens, in any size mesh from 2 to 8. Size of screen, 16x28 inches; weight, 175 pounds. Particularly adaptable where steam or air are not available.

**Price Each, \$50.00.**

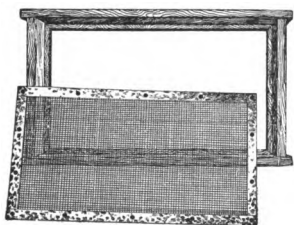


Fig. 358

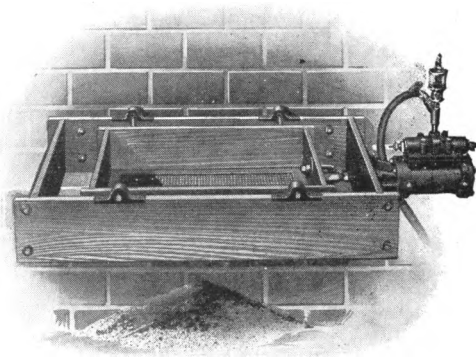


Fig. 359

### MIDGET SAND SIFTER

The Midget Sifter can be bolted to wall or placed on tub. Has a 3-inch air engine that consumes very little air. Is light in weight and takes up very little room. It is dust-proof and gives no trouble. Low up-keep cost.

Size of screen, 16x18 inches. Easily replaced when worn. Weight, 80 pounds. Fig. 358 shows the construction of screen used in this sifter.

<b>Price, complete.....</b>	<b>\$55.00</b>
<b>Price Screens only, each.....</b>	<b>3.00</b>

## Small Tripod Air Shaker

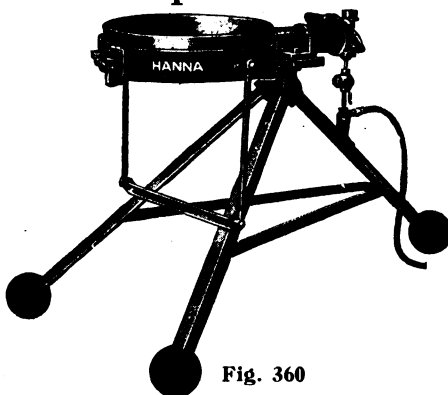


Fig. 360

This Sand Shaker is easily moved to any place where screening is required. The steel band screen holder with the improved clamp device is made for an 18-inch diameter riddle. Will riddle more material in an hour than one man can screen all day by hand.

Air pressure from 20 to 30 lbs. required.

Price, \$75.00.

## LARGE TRIPOD AIR SHAKER

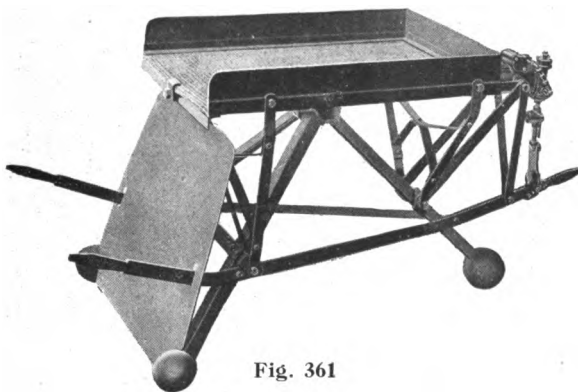


Fig. 361

The capacity of this machine under same conditions is double the capacity of the small tripod shaker, arranged with screen box 24x36 inches with open end for quick removal and replacement of screens. Under full load and continuous operation it will require about 35 feet free air per minute. This machine is designed for portable use. Can easily be carried by two men by means of handles.

Air pressure from 20 to 80 lbs. required.

Price, \$112.50

## Sand Sifter

Steam or Air Drive

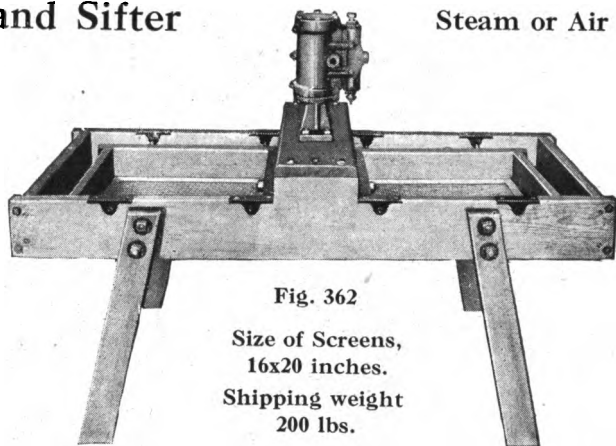


Fig. 362

Size of Screens,  
16x20 inches.

Shipping weight  
200 lbs.

This illustration shows our new Sand Sifter, designed to handle more sand than the ordinary sifter. Two grades of sand can be handled at the same operation, which is a great convenience. It can be regulated by the throttle valve to run fast or slow, as desired.

In construction, only the very best materials and workmanship are employed throughout. They are built to stand the hard use in the foundry without getting out of order. They are light in weight, and can be readily moved to any part of the foundry with ease. There are few wearing parts and nothing to get out of order. The screens travel in opposite directions, causing the machine to sit still on the floor.

The capacity of each screen is 50 per cent larger than an 18-inch foundry riddle, and our improved iron-bound screens are easily removed for cleaning and changing. The air engine is large, and the perfectly balanced air valve is the best governing element on the market to-day.

We furnish four screens with each machine—two  $\frac{1}{4}$ -inch mesh, two  $\frac{1}{3}$ -inch mesh, or, if desired, we can furnish  $\frac{1}{2}$ -inch or  $\frac{1}{8}$ -inch mesh in place of the above, and for very fine work, such as flour, we can furnish 20-mesh screens at extra cost.

For foundries and core-rooms it has no equal, and will handle wet or dry sand to your entire satisfaction. There are thousands of these machines in use, all giving splendid results.

One man can mix facing for fifty molders, or core sand mixture for forty coremakers, which is a great saving over the old method of hand sifting. We guarantee them to pay for themselves in three months. They will wear longer with less cost for upkeep than any other sand sifter on the market.

Price complete, with four screens, \$90.00.

## Deane Sand Riddles

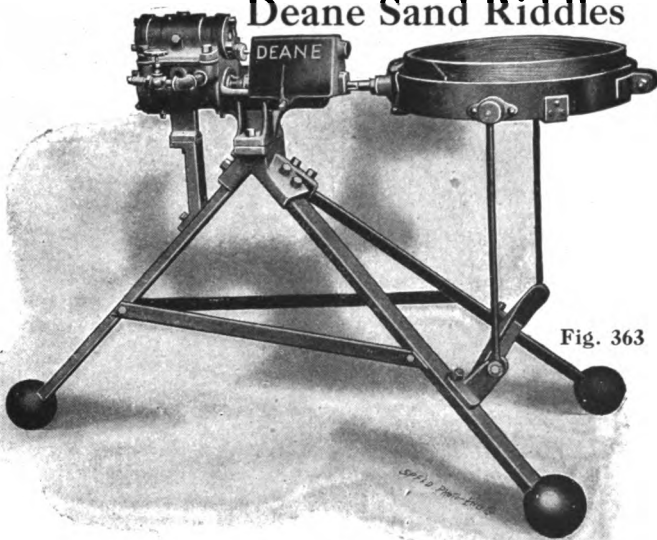


Fig. 363

### For Air or Steam

The Deane Riddles are not to be confounded with or compared to the light machines sometimes employed in foundry work. The machine here illustrated is heavy, practicable, and substantial. The capacity naturally varies with the size; is in reality limited by the user's ability to get the sand into the screen. The use of one of these riddles will, in general, show a saving of upwards of 60 per cent in the cost of screening sand. Made in two sizes only.

No. 00, to take an 18-inch regular riddle.....\$100.00  
 No. 0, to take a 20-inch regular riddle..... 100.00

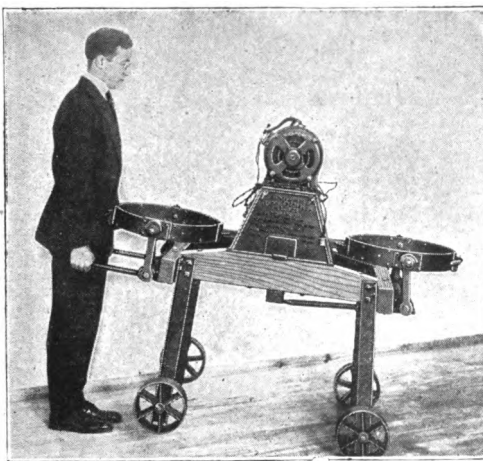


Fig. 364

## DUPLEX ELECTRIC SAND SHAKER

The Duplex Electric Shaker is furnished with chain or belt drive. As shown in illustration it is equipped with wheels and can be moved to any part of the shop by one man, the wheels are so arranged that it will remain stationary when in operation. Fitted with  $\frac{1}{4}$  H. P. motor for either D. C. or A. C. current. Can also be furnished to be operated with compressed air.

Prices and further information on request.

**Model "K"  
Sand Riddle**  
MOTOR DRIVEN  
TROLLEY TYPE

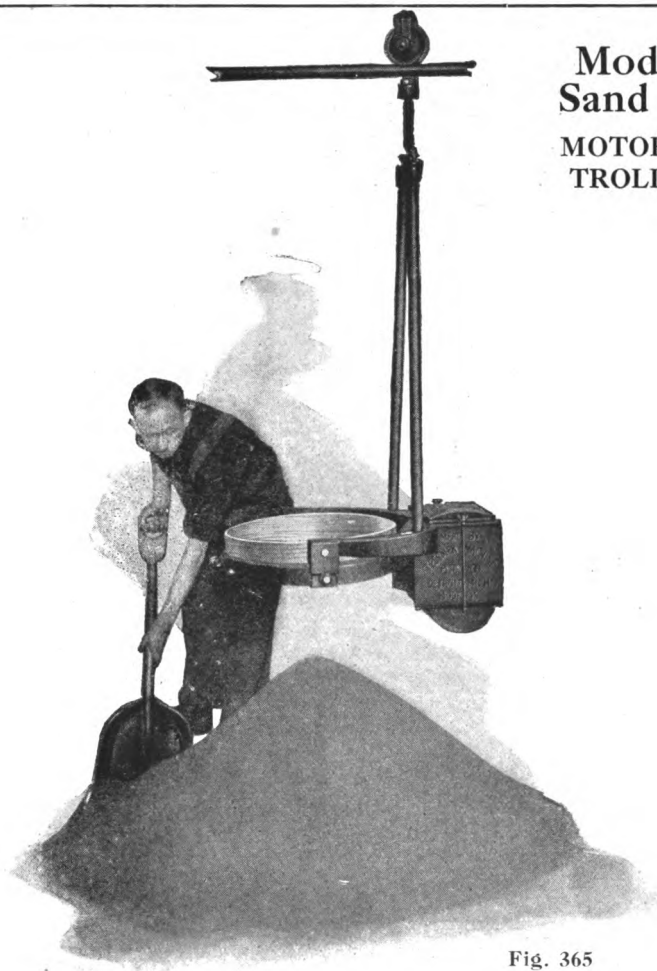


Fig. 365

Model K Electric Sand Riddle is equipped with a  $1/6$  H. P. Motor, for either direct or alternating current, and can be operated from any lamp socket. It has a stroke of  $3/4$  inch, and a to and fro motion of 600 per minute.

Machine is furnished with 20-inch Standard Machine Riddle, which can readily be removed by improved clamping device. Machine is made entirely of metal, all working parts enclosed, protecting them from sand and dust.

When ordering, do not fail to specify whether riddle is for direct or alternating current, and voltage. Trolley is standard and wheel is grooved for round track.

**Price, \$175.00.**  
**Sent on 30 days' trial.**

**Page 132**

**MODEL "L" SAND RIDDLE**  
**MOTOR DRIVEN FLOOR TYPE**



Fig. 366

The principle of Model "L" is exactly the same as Model "K," except that it has a tripod base and sits solidly on the floor.

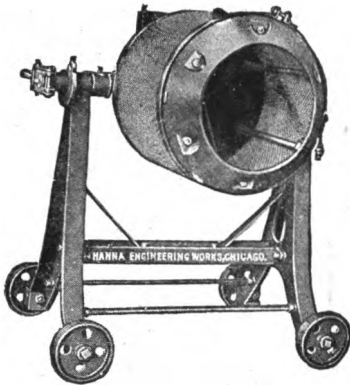
Sand can be shoveled into it from any angle. Machine is furnished with a 20-inch standard riddle, which can readily be removed, when desired, by improved clamping device. When ordering, specify whether direct or alternating current, and voltage.

**Price, \$175.00.**

**Sent on 30 days' trial.**

**Page 133**





**Fig. 367**  
**With Wheels**

**REVOLVING  
DUMPING  
RIDDLES**



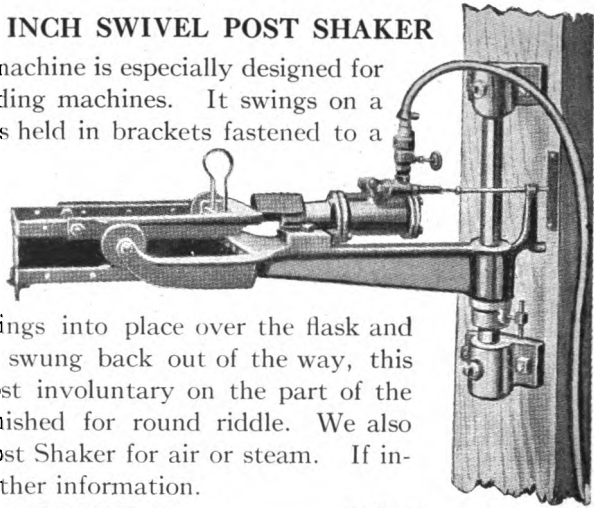
**Fig. 368**  
**Without Wheels**

These Revolving Dumping Riddles are designed with lugs which can be drilled and arranged for wheels, so that riddles can be moved very easily. Motor of  $\frac{1}{4}$  H. P., wound for any current. Screening barrel is  $23\frac{1}{2}$  inches in diameter, 18 inches long, and revolves at a speed of 24 R. P. M. Screens can be quickly changed by simply loosening bolts in band irons at both ends of barrel. Housings, gears, and motor enclosed, to keep out sand or dirt. Riddles are furnished complete with switch and cable, ready for attaching to lamp socket. Fig. 368 shows riddle in dumping position. Rejections can be dumped by swinging screening barrel over backwards, and as barrel and motor are balanced on trunnions this can be done without stopping motor.

**Prices on application.**

**2 7/16 INCH SWIVEL POST SHAKER**

The swivel post machine is especially designed for bench work and molding machines. It swings on a vertical shaft, which is held in brackets fastened to a wall or post, and is furnished with an automatic valve, which admits air to the cylinder for starting the machine as it swings into place over the flask and cuts off the air when swung back out of the way, this operation being almost involuntary on the part of the molder. Can be furnished for round riddle. We also furnish Stationary Post Shaker for air or steam. If interested, write for further information.



**Fig. 369**

**Square or Round Riddle.....\$100.00**

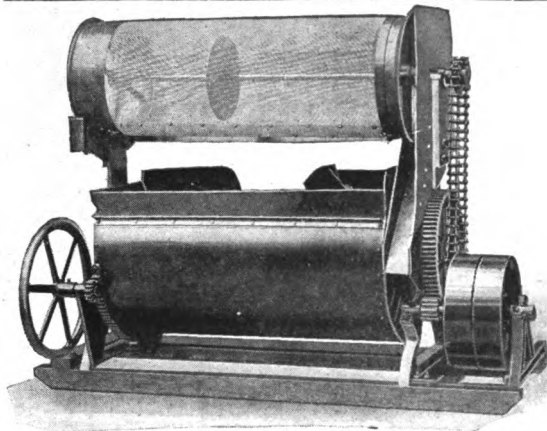


Fig. 370

## Blystone Core and Facing Sand Mixer

Equipped with rotary screen. Height of charge, 46 inches. Height over all, 64 inches. Heavy, powerful construction throughout.

### SPECIFICATIONS

Model	Capacity, Cu. Ft.	Floor Space, Inches	H. P.	Size T. & L. Pulleys	Speed Countershaft
No. 1	7 to 9	87 x 30	3	4 x 18 in.	150 R. P. M.
No. 2	5 to 6	66 x 30	2½	4 x 18 in.	150 R. P. M.
No. 3	12 to 14	96 x 34	10	6 x 24 in.	100 R. P. M.

### Power Discharge

The drum may be tipped by hand lever, as in model on following page, but we recommend the Blystone Power Discharge, which gives perfect and easy control. The Blystone charges and discharges while in motion.

### Directions for Ordering

When ordering or requesting quotations, give model number from above table, and specify regarding the following details: Rotary screen, power discharge, electric motor or not, high or low standards. If motor is desired, state whether current is A. C. or D. C.

### High Standards

The Blystone is usually equipped with low standards, but if wanted to discharge into wheelbarrow the mixer will be equipped with high standards. Bear this in mind when ordering.

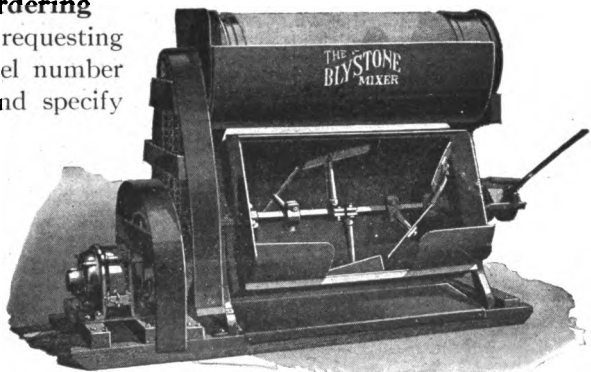
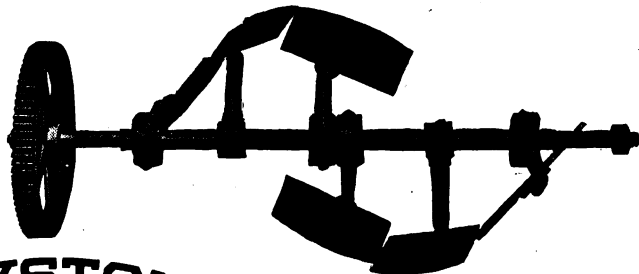


Fig. 371

Equipped with rotary screen, power discharge, and electric motor.

**BLYSTONE CORE AND FACING SAND MIXER**



**The**  
**BLYSTONE**  
**SAND MIX**  
Known as the thorough mix

Fig. 372

**The Blystone Patented Reverse Spiral Shoveling Action**

The six powerful steel shovels are so arranged—three facing one end of drum and three the other—that a reverse spiral shoveling action is effected. This results in a grinding, kneading, smoothing, and mixing of every portion of the mass. Every portion of the batch is brought into contact with every other portion, and is thrown from one end of the drum to the other 44 times every minute. The resulting mixture is absolutely uniform throughout. This unusual completeness of the Blystone mix effects a very marked saving in binder, eliminates broken cores, and makes smoother castings. Records of Blystone performance in more than 1,000 foundries show that, as compared with hand mixing, the labor-saving is from 60 to 75 per cent.

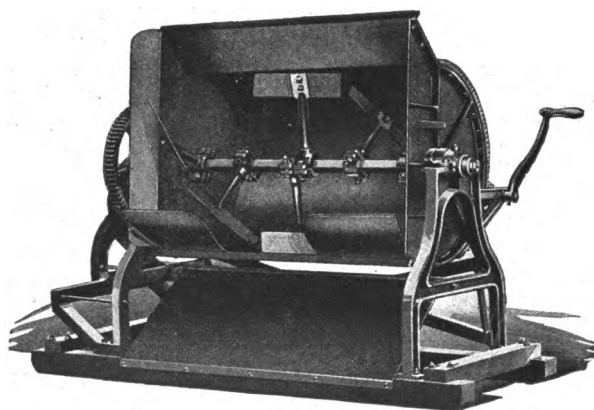


Fig. 373

**BLYSTONE MIXER WITHOUT REVOLVING SCREEN**

In position for discharging. Drum is tilted with the hand lever. See previous page regarding the Blystone Power Discharge.

## Standard Core and Facing Sand Mixer .

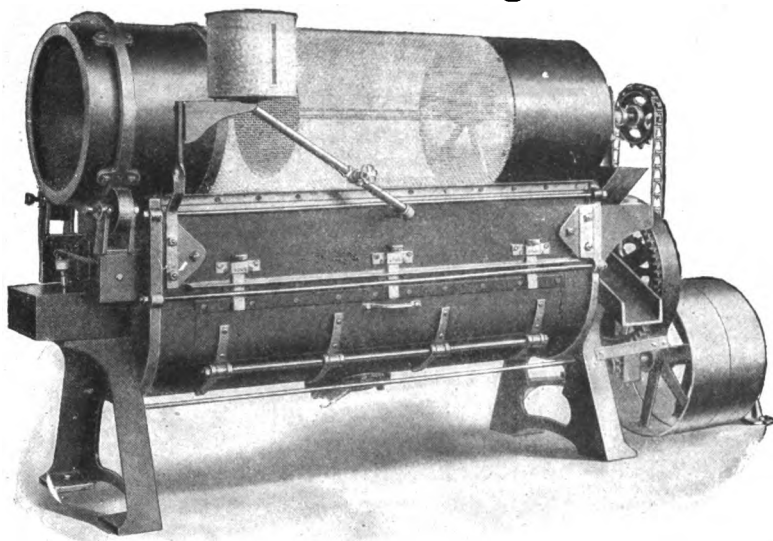


Fig. 374

### Sizes 1, 2, and 3 LABOR OF 75 TO 200 MEN

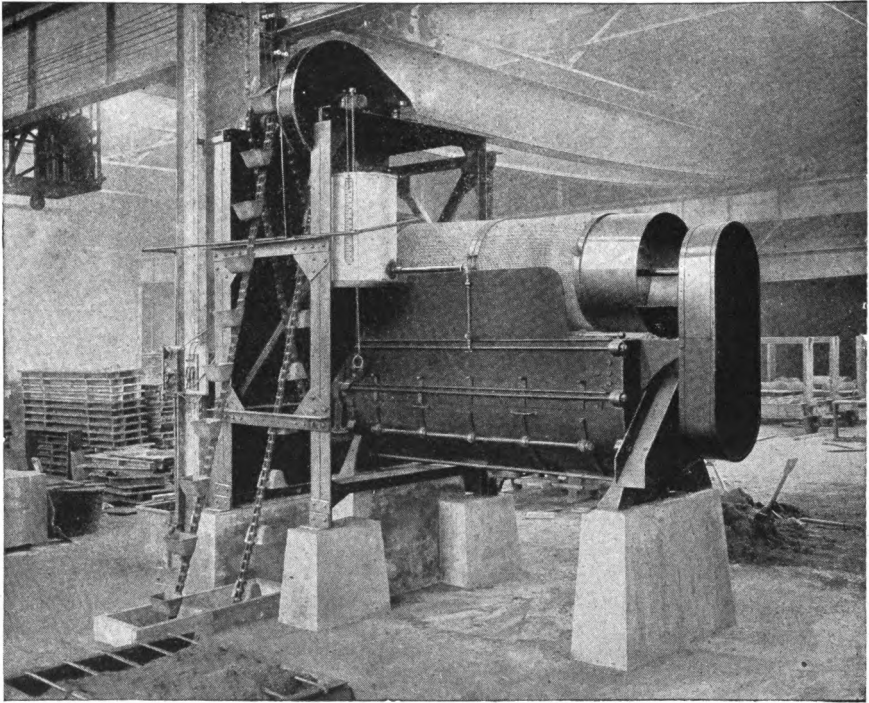
Illustration shows the heavy type Batch Mixer complete with Revolving Screen, Clean-out Door, Water Tank and Spray Pipe and T. & L. Pulleys for belt drive. For direct motor drive a cut gear is furnished instead of pulleys.

This outfit is built heavy and strong for hard service and durability. Screening, mixing, and tempering are done in one continuous process, the only labor required being to deliver the materials to mixer. The prepared sand is quickly discharged by opening the discharge gate underneath. Four to five minutes' mixing will thoroughly prepare core or facing sands. Furnished without screen when desired.

Weight: No. 1, 2,450 lbs.; No. 2, 2,650 lbs.; No. 3, 2,850 lbs.

Size	Floor Space	Capacity Per Batch	H. P.	Size T. & L. Drive Pulleys	Speed Counter Shaft	Price
No. 1	2' 7" x 8' 7"	6 cu. ft.	4	26x6	95 R. P. M.	\$445.00
No. 2	2' 7" x 9' 9"	7½ cu. ft.	5	26x7	95 R. P. M.	475.00
No. 3	2' 7" x 10' 11"	9 cu. ft.	6	26x8	95 R. P. M.	507.50

Blue prints on request.



**Fig. 375**

**No. 4 STANDARD CORE AND FACING SAND MIXER  
With Feed Hopper and Elevator**

**Mixers of large capacity, 60 tons per 10 hours**

Designed to meet the requirements of large foundries and to mix sand in large quantities for core, facing, heap, and backing sands. It is equipped with water tank, spray pipe, and revolving screen. A structural steel frame is also provided to support the head elevator shaft and back gears.

Illustration shows this mixer installed and ready for use with a cubic yard charging hopper at the floor line, where it is filled by bucket delivered by traveling crane. The material is conveyed from the hopper to the elevator boot by means of a heavy steel conveyor auger, and from the boot it is elevated to the revolving screen by either a bucket and chain or bucket and belt elevator.

The mixer is set on piers high enough so that a large bucket or car can be used to remove the prepared sand. In this case no shoveling is required. All dry materials to be used in the mixture are dumped into the floor hopper, which holds one charge for the mixer.

**Blue prints on request.**

**Price, \$5,500.00.**

**Page 138**

## Centrifugal Sand-Mixing Machine

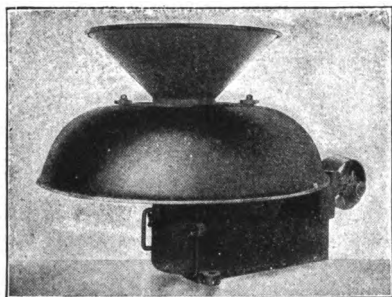


Fig. 376  
Pulley Driven

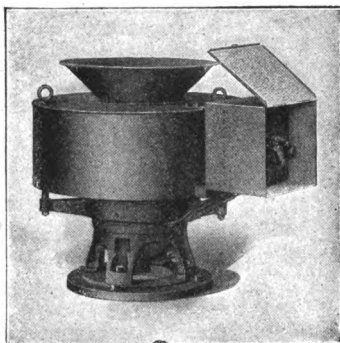


Fig. 377  
Direct Motor Drive

This machine will thoroughly disintegrate lumpy sand and evenly mix all kinds of foundry sand, including molding sand, mixtures of old and new sand, facing sand and compounds, and does the work continuously and as fast as the material is fed into the hopper.

The machine consists of a rapidly revolving table, having on its top surface a number of inserted pins projecting upward. The sand is fed into the hopper at the top of the machine. It falls upon the revolving table, and is thrown by centrifugal force from pin to pin and out against the inside of the hood that surrounds the table. The sand emerges from beneath the hood in a fine shower, free from lumps and thoroughly mixed.

The machine is of great value as a labor-saver. Its capacity may be roughly stated at about ten tons per hour, but its actual capacity is limited only by the facility with which the sand can be delivered to and removed from it.

On pulley-driven machine the table spindle, spindle pulley, and bearings are enclosed in the housing or base upon which the machine stands, so as to effectually protect these parts from sand and dirt. A removable door or cover is placed at the front of the housing to afford access to the spindle and bearings for cleaning or lubrication.

The direct motor-driven machine is portable. It may be carried about and placed conveniently to the sand pile, using flexible cable to nearest line connection. It is driven by electric motor enclosed within the housing, which is thoroughly protected from sand, dirt, etc. Speed variable by field controller.

**Pulley Drive—Price, \$275.00.**

**Motor Drive—Price on request, accompanied by particulars regarding electric current, etc.**

## Simpson Intensive Foundry Mixer

"Saves Sand and Labor"

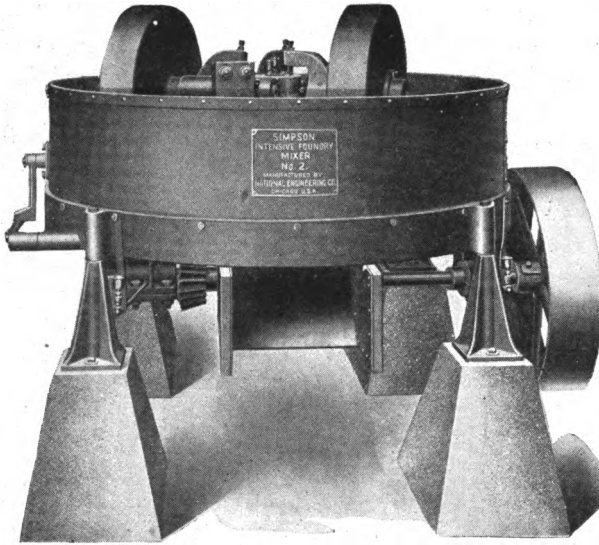


Fig. 378

Exterior view of No. 2 size. Diameter of pan, six feet.

Made in two sizes:

No. 1—Size, 4 ft. in diameter .....	5 H. P.
No. 2—Size, 6 ft. in diameter .....	10 H. P.

The Simpson Mixer is the highest type of foundry sand-mixing machine on the market. The mechanical action of the mullers and plows thoroughly incorporates the various ingredients, permitting a maximum percentage of old sand to be used in facing mixtures and decreasing the amount of binder required for core sand, as well as obtaining efficient results. Its automatic discharge, low cost of maintenance and operation, adjustability for all classes of work, make it an ideal machine for the purpose. It is used in a great many of the best-known foundries in the United States, Canada, and abroad in connection with the manufacture of iron, steel, malleable and brass castings.

### Further Particulars on Application

No. 1 .....	\$812.50
No. 2 .....	1,218.00

## The Wadsworth 3-Foot Sand-Mixing and Compounding Mill

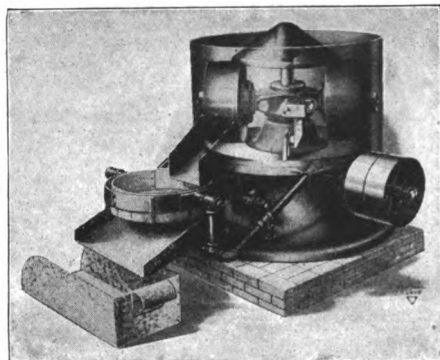


Fig. 379

The machine shown in the above illustration consists of an ordinary roller mill, in which two rollers weighing several hundred pounds each travel around in a circular path upon the cast iron base plate, the rollers being driven from the driving pulleys shown on the right by means of a vertical shaft and a set of bevel gears.

In the center of the casing surrounding the machine there will be seen a metal cone, which serves two purposes: First, it protects the upper bearing of the shaft carrying the roller-driving mechanism; in fact, the cone is attached to this mechanism and revolves with it; second, it serves to distribute the sand when it is shoveled or dumped into the machine, so that it will fall where it will be immediately acted upon by the rolls. A batch of material is introduced into the machine while it is in motion and ground, with the addition of the necessary binding material.

It will also be noticed that the riddle is of the ordinary standard type, and fits loosely in the riddle frame. This makes the riddling much more rapid and effective, as it duplicates the rapping action which the operator usually employs when riddling by hand.

Diameter of Pan .....	3 ft.
Size of Rollers .....	14 ft. by 6 in.
Weight of Rolls .....	238 lbs. each
Size of Driving Pulley .....	16x5½
Speed of Driving Pulley .....	56 Rev.
Horse Power required for Core Sand .....	2
Horse Power required for Facing .....	4
Height .....	4 ft.
Space required .....	5 ft. by 3 ft. 4 in.
Total Weight .....	2,000 lbs.
Five or six tons of either Core Sand or Facing ground per day.	

Price, \$375.00.



## Patterson Wet and Dry Pans

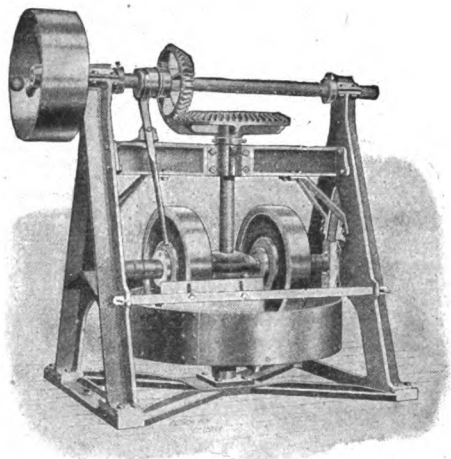


Fig. 380

### Made in Two Sizes—3 and 5 Feet Diameter

A glance at the construction of this pan will convince the most skeptical of its superiority. We call attention to the exceptionally heavy housings used in its construction, also the heavy cast iron bed-plate.

The gearing is also exceptionally large, the master wheel being 34 inches in diameter, the pinion 17 inches. The vertical shaft is of steel,  $3\frac{1}{2}$  inches in diameter.

For wet grinding, blind screen plates are supplied in place of the regular screen plates.

Three-foot pan is about  $\frac{1}{3}$  capacity of the 5-foot size.

Size	Weight, Pounds	Floor Space, Inches	Speed, R. P. M.	H. P.	Price
3 ft.	3,000	48 x 60	60	3	\$420.00
5 ft.	7,000	56 x 75	60	7	900.00

## Buckeye Patented Metal Melting Furnaces FOR MELTING BRASS, BRONZE, COPPER, ALUMINUM, ETC.

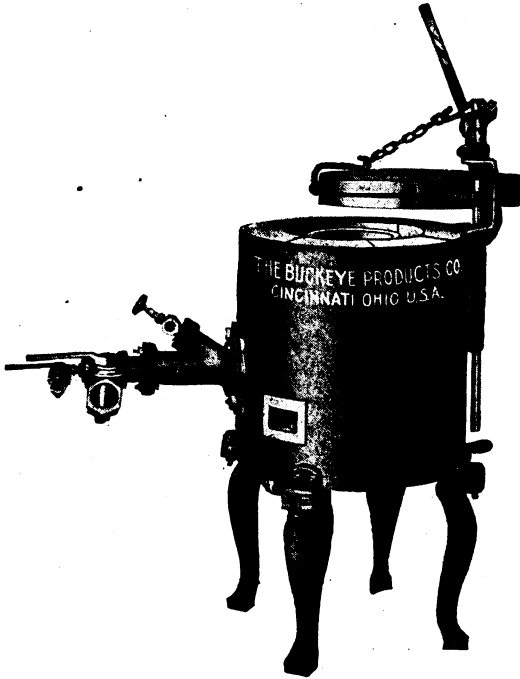


Fig. 381

Stationary Crucible Type  
Showing cover raised and swung aside

Buckeye crucible type furnaces have been designed and developed by practical foundrymen, and are the result of years of careful study and experimentation, with a view of meeting all the requirements of modern foundry practice.

By means of an exclusive feature in the burner, not contained in other types of furnaces, either gas, kerosene, crude or fuel oils may be used as fuel. The furnaces are simple in construction, yet rigid in every detail. The best materials and workmanship are used throughout. The construction of these furnaces is such that it is seldom necessary to replace parts other than base blocks, covers and linings, which will gradually burn away from constant use. We are prepared to furnish all necessary repair parts from stock.

To obtain best results with oils as fuel, we have adopted the high-pressure feed system. This system insures more complete atomization of the fuel than is possible by means of gravity or low pressure. A high degree of efficiency in the combustion of the fuel is attained.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

BUCKEYE PATENTED METAL MELTING FURNACES

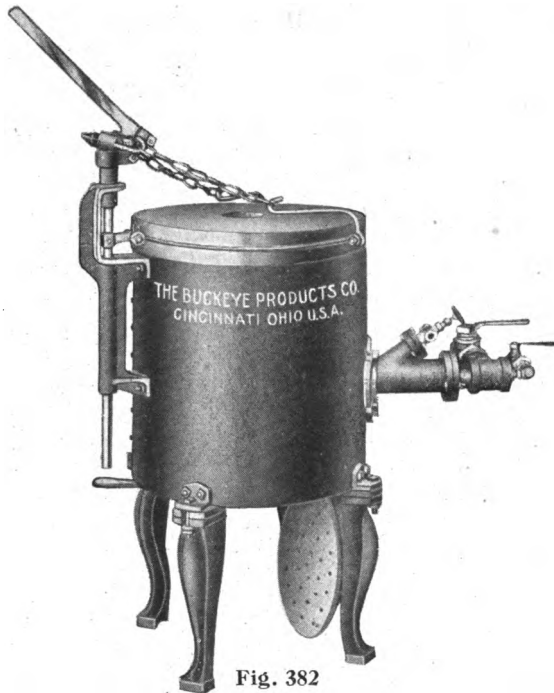


Fig. 382

**Stationary Crucible Type  
Cover closed, with Drop Bottom released**

The burner feature is patented on all Buckeye Furnaces, and our burners represent the highest degree of combustion efficiency.

Natural, artificial, or producer gas may be used, as well as crude, fuel, or kerosene oils. Maxon Premix Burners or Positive Pressure Blowers give perfect satisfaction in connection with Buckeye Furnaces, in providing air for fuel mixture. See page 163 for further information in regard to the Maxon Premix Burners.

The oil or gas burner is very simple in construction, not complicated, and can be readily removed for cleaning when necessary. After prolonged experimentation, we have developed a burner which uses the minimum amount of fuel with the maximum of efficiency in utilizing all combustible elements contained in the fuel.

We construct our crucible type of furnaces to suit all conditions. We can supply furnaces with suitable length legs and cover-swinging device, so that they can be set in any desired place in the foundry or furnace room and occupy but very little space. We provide legs of proper length to meet conditions, so that the furnaces may be set either in a pit (most generally used in foundries) or on the floor. Legs for pit, 18 inches; for floor use, 7 inches long.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

### BUCKEYE PATENTED METAL MELTING FURNACES

The cover may be raised and swung right or left clear of the furnace to permit convenient and easy removal of the crucible. The lid-lifting mechanism may be attached to the furnace at the most convenient point for operation in view of the requirements of each particular foundry location. For the convenience and comfort of the furnace operator, the lid-lifter handle is removable.

Buckeye Crucible Furnaces are provided with drop bottoms. In the event of a crucible breaking, the contents may be readily removed without the necessity of tearing down the furnace lining. This feature saves time, linings, and labor; and insures easy recovery of the metal.

One Buckeye gas or oil-fired crucible furnace will supplant two to four coke or coal-fired furnaces. Fuel cost stops instantly when fuel supply is cut off. One Buckeye furnace will give from six to twelve heats per day, depending on nature of metals melted. By means of the combination burner the fuel supply may be maintained at all times. In the event gas supply is not available, oil may be used, or vice versa. No metal is lost or has to be reclaimed from ashes. The crucible is at all times readily accessible for removal. Slag cannot accumulate in the furnace and cause it to clog up. A slag-hole is provided in each furnace of sufficient size to allow the slag to escape from the furnace, and in such position that the loss of heat is reduced to a minimum.



Fig. 383

Furnace with Maxon Premix Burner Attached

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

## BUCKEYE PATENTED METAL MELTING FURNACES

The flame so enters the furnace that it does not strike the crucible directly, thus prolonging its life. The melting operation takes place from the bottom of the crucible, where the greatest heat is maintained.

With the combination burner used on our furnaces, the fuel may be instantly changed from gas to oil, or vice versa, without necessitating change of valves, pipes, etc.

Both fuels may be used simultaneously in admixture if desired by the operator. These are advantages that will be readily recognized by the modern foundryman. The burners are always under perfect control of the furnace operator, and do not require constant adjustment and attention. When once set in proper position the burner may be allowed to run until the charge is reduced and brought to a pouring temperature.

### Specific Information Required in Quoting on Furnaces

1. TYPE OF FURNACE.—Crucible or Non-Crucible; Stationary or Tilting.
2. LOCATION OF FURNACE.—Whether on floor or pit. If for pit, give dimensions of pit. If possible, send blue print or sketch of location where furnace is to be installed.
3. Metals to be melted.
4. Approximate composition of metals to be melted.
5. Amount per heat and approximate amount per day of metal to be melted.
6. FUELS AVAILABLE OR INTENDED TO BE USED.—Natural, Artificial, or Producer Gas, Crude, Fuel, or Kerosene Oil. State B. T. U's. and pressure, if gas.
7. Size of delivery pipe of gas available in foundry, and size of gas main leading into plant.
8. AIR EQUIPMENT DESIRED.—Maxon Premix Burner or Positive Pressure Blower.
9. If Maxon Premix Burner, state electric current. If D. C., give voltage. If A. C., give voltage, cycles, and phase.

### SIZES, CAPACITIES, ETC.

Built in sizes from 30 to 900 pounds capacity.

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

## Buckeye Patented Tilting Type Crucible Furnace

FOR MELTING BRASS, BRONZE, COPPER,  
ALUMINUM, ETC.

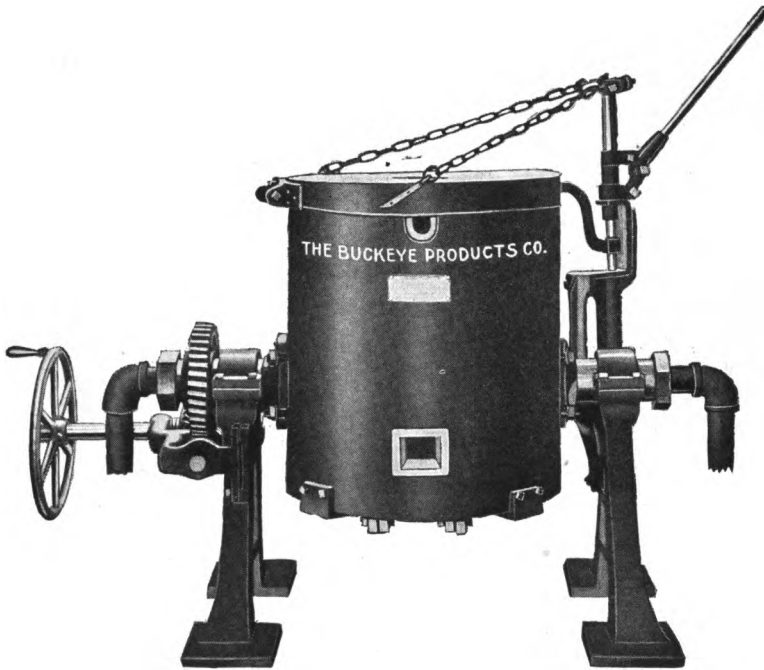


Fig. 384

In upright position, ready for charging.

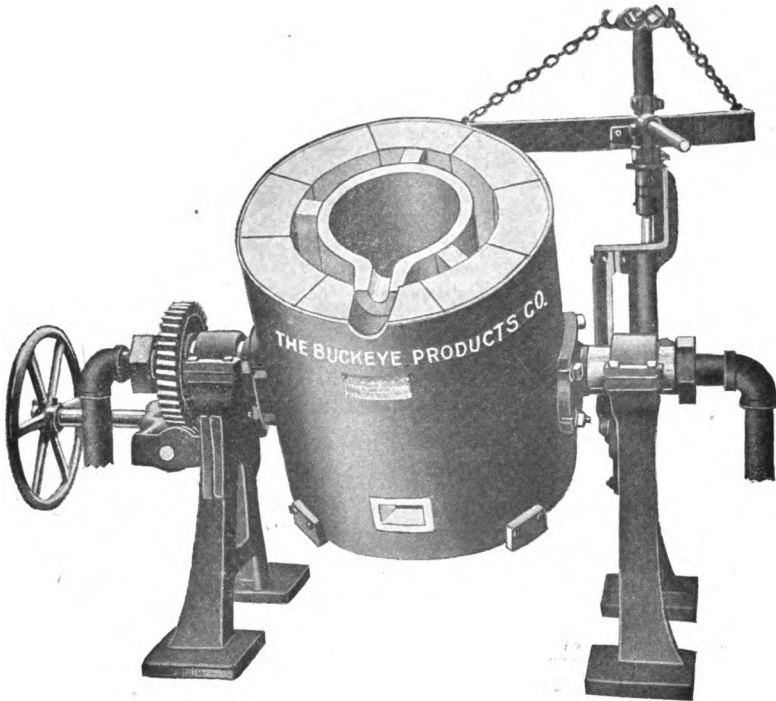
The same features are maintained in the tilting type Buckeye crucible furnaces as in the stationary type, excepting that a tilting arrangement is provided which is worm-gear and positive, so that the furnace cannot be overbalanced and cause accidents.

The tilting type furnace is most generally adopted where large crucibles are used of such size that handling would not be convenient, by means of tongs, shanks, etc. The tilting type furnaces are always set on the floor and never in a pit. They are made in sizes to accommodate crucibles ranging from No. 80 to No. 300 size.

The combination Oil and Gas burner sustains a flame which accomplishes the melting of non-ferrous metals with loss caused by oxidation reduced to a minimum. This is an extremely valuable and most important feature in melting metals with gas or oil as fuel.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices, upon request.**

**BUCKEYE PATENTED TILTING TYPE CRUCIBLE  
FURNACE**



**Fig. 385**

**In tilted position, ready for pouring.  
With cover removed.**

The flame so enters the furnace that it does not strike the crucible directly, thus prolonging its life. The melting operation takes place from the bottom of the crucible, where the greatest heat is maintained.

This type of furnace is supplied with drop-grate to facilitate making necessary repairs to brick lining, for cleaning, etc., without removing side linings. Slag-hole is also provided to allow slag to flow out and not clog. Construction is extremely rigid throughout, and strictly guaranteed against defects in material or workmanship. Worm-gear arrangement causes the furnace to lock in any position in which it may be tilted.

**Prices on application.**

**Special Furnace Catalog giving further details, dimensions, particulars,  
and prices upon request.**

## Monarch Crucible Tilting Furnace

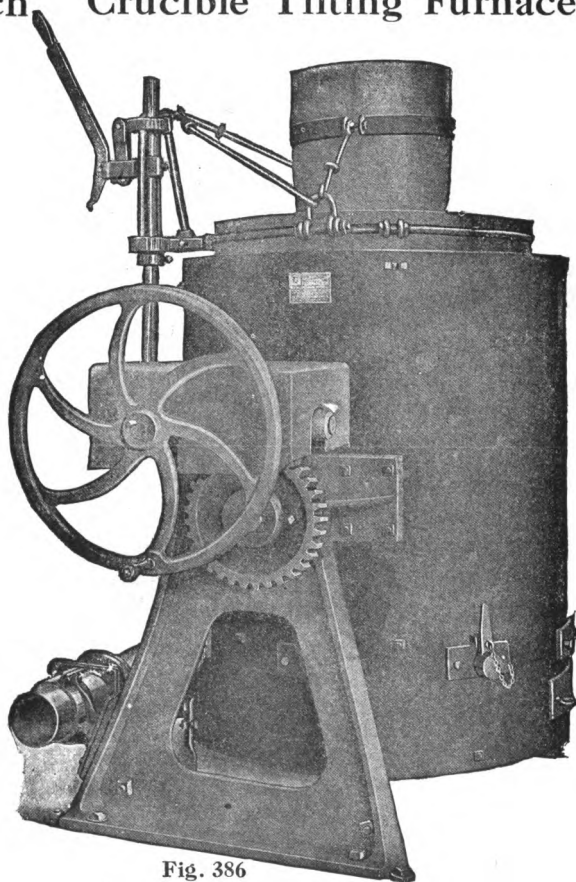


Fig. 386

### FOR COAL OR COKE

The Monarch Coal or Coke Fuel Crucible Tilting Furnace was designed to melt brass, bronze, copper, aluminum, and other metals. This furnace does not require any re-coking during the heat. The space outside of crucible holds enough fuel. The cover does not lift off; can be swung aside and tilts with furnace.

Worm-wheels are covered, complying with safety-first code. Grate bars are revolving. It is not necessary to turn furnace over after each heat or to crow-bar the clinkers and grate bars. Furnace has a drop-bottom, hollowed, and when blast is off can be used as "natural draft." Capacities: For Nos. 80, 125, 150, 275, and 400 Crucibles.

#### PRICES

No. 80 .....	\$545.00	No. 275 .....	663.00
No. 125 .....	585.00	No. 400 .....	780.00
No. 150 .....	625.00		

Special Fuanace Catalog giving further details, dimensions, particulars, and prices upon request.



## Buckeye Positive Non-Crucible Open Flame Furnace

**POSITIVE, BECAUSE IT STAYS WHERE TILTED WHEN  
IN OPERATION**



The tilting arrangement to effect positive locking is worm-gearred and positive in operation, so that when the furnace is tilted it cannot be overbalanced. This avoids accidents and insures precision in pouring.

Equipped with Maxon Premix Burner for use of gas or oil. Oil pump installation when oil is desired for fuel. Metal is melted and brought to a pouring temperature by heat radiated from the superheated lining.

A reducing, neutral, or oxidizing flame in the furnace plays, at the operator's will, on the surface of the lining exposed to the flame by the alternate tilting of the furnace.

For installation of this furnace with gas for fuel, a 2-inch gas pipe connection from main is recommended for the best results. If oil is used as fuel, an oil pump with 50 to 60 pounds' pressure on the oil line is recommended.

Motor on the Maxon Premix Burner outfit requires 1 H. P. When ordering, specify if D. C. or A. C. current is available. If D. C., state voltage. If A. C., voltage, cycle, and phase.

### MELTING CAPACITY

This furnace is built with a melting capacity of from 400 to 500 pounds per heat.

### DIRECTIONS FOR OPERATING

Directions for operating are sent with furnace.

Prices on application.

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

## Buckeye Stationary Type Aluminum Furnace

OIL OR GAS FUEL

**Can Also be Used for  
Melting Babbitt, Tin,  
Lead, Solders,  
White Metals, Etc.**

The kettle furnished with this furnace may be lined with our BUCKEYE HIGH-TEMPERATURE FURNACE CEMENT, which prevents the absorption of iron oxides (due to the affinity that molten aluminum has for iron). This insures a superior grade of metal. The molten metal is removed from the kettle by means of hand-ladles.

**Built in one size and capacity only. Kettle has capacity of 275 pounds of molten aluminum.**

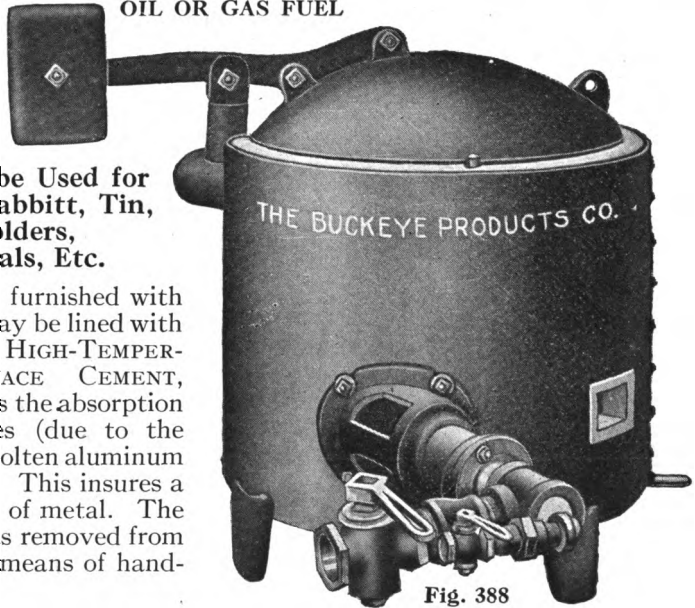


Fig. 388

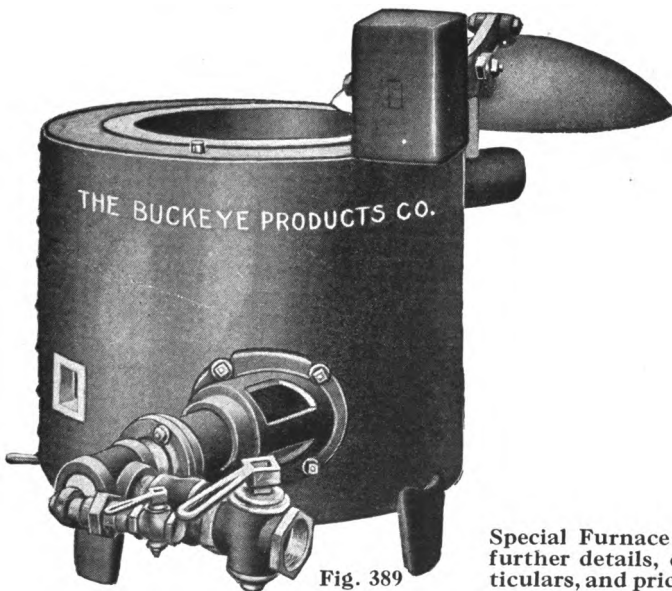


Fig. 389

**Cover swung aside showing kettle.**

**Special Furnace Catalog, giving further details, dimensions, particulars, and prices upon request.**

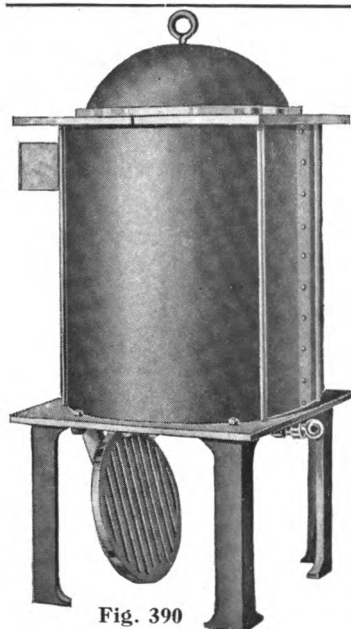


Fig. 390

## Buckeye Natural Draft Coke or Coal Furnace

ALSO MADE WITH ENCLOSED  
BASE FOR FORCED DRAFT

The Buckeye Natural or Forced Draft Furnaces have thick steel drum securely bolted to heavy cast plates. They are equipped with heavy drop-bottom grate, sliding cover, and 4½-inch thick refractory tile lining.

They have a large-size throat for flue connection.

This type of furnace is built for all sizes of crucibles.

Write for detailed information and price, giving your requirements.

## STEWART BENCH SOFT-METAL MELTING FURNACE

This furnace has been built to satisfy a demand for an outfit of small capacity occupying little space, yet with maximum efficiency. It is intended to be used on a bench and connected as shown in the illustration. The vertical pipe connected to the cock-valve, for the air, should be connected in this way, as better results are obtained when air is fed from below.



Fig. 391

Capacity, Pounds	Bench Space	Consump- tion Gas per Hour	Weight, Pounds	—Prices—	
				With Blower	Without Blower
25	18 x 18	15 cu. ft.	85	\$52.00	\$20.00

## 392 FLOOR FURNACES

Floor Furnaces are similar in construction to the bench type, as shown above, except the cover, and are to be stood on floor.

Capacity, Pounds	Floor Space	Consumption Gas per Hour	—Price—	
			With Blower	Without Blower
150	24 x 24 in.	60	\$92.00	\$58.50
300	26 x 26 in.	70	105.00	72.00
500	30 x 30 in.	150	120.00	85.00

Special Furnace Catalog, giving further details, dimensions, particulars, and prices upon request.

## BUCKEYE PORTABLE MELTING FURNACE

### Type S. H.

Type S. H. Metal Melting Furnace has a capacity up to 750 pounds. The oil tank has a capacity of 17 gallons, burns kerosene oil, and is self-contained.

Capacity	Weight	Price
450 lbs.	500 lbs.	\$180.00
750 "	600 "	190.00

We can also furnish a type S, which is similar in design to the type S. H., but has a nine-gallon oil tank.

Capacity	Weight	Price
300 lbs.	300 lbs.	\$120.00
450 "	350 "	128.00



Fig. 393

## KETTLES FOR MELTING METALS

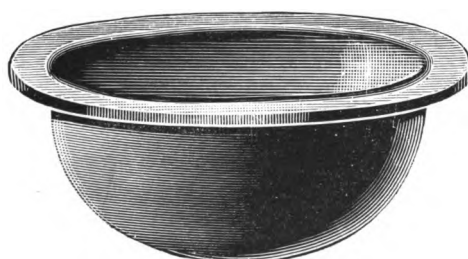


Fig. 394

These kettles are cast from  $\frac{1}{2}$ -inch to 2 inches thick. The weights given in the table are for regular thickness.

No.	Diam. Outside of Flange, In.	Diameter Inside, Inches	Depth Inside, Inches	Weight, Pounds	Price Each
1	14½	12	8½	45	\$3.60
5	23	18½	12½	130	10.50
6	26¼	17	12	158	12.70
7	26¼	21½	13½	200	16.00
10	30	24	15½	255	20.50
13	36	26¾	16	415	33.25
16	37¾	32	21	585	47.00
18	49	42½	23½	1,080	86.50

Other sizes made to specifications.

Special Furnace Catalog, giving further details, dimensions, particulars, and prices upon request.

Soft Metal Melting Furnace

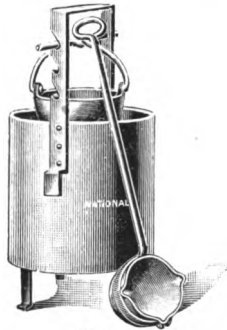


Fig. 395

The furnace shown herewith can be furnished with wheels, if desired. Wheels are made with wrought-iron rims and spokes. Shell is made of boiler plate, designed for coal or coke fuel. Made in the following capacities:

No.	Capacity	Diameter	Diameter	Depth	—Prices—	
	Pot	Shell	Pot	Pot	Portable	Stationary
1	140 lbs.	18 ins.	13 ins.	7½ ins.	\$40.00	\$32.50
2	280 lbs.	24 ins.	13½ ins.	11 ins.	47.50	40.00
3	560 lbs.	30 ins.	18 ins.	14 ins.	57.50	50.00

Above price includes Pot, Bar, Grate, and Ladle.

METAL MELTING FURNACE

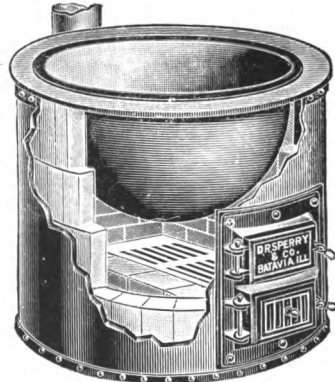


Fig. 396

This is a new type of furnace for melting soft metal. The following prices cover complete furnace, excepting the fire brick.

Capacity	Price	Capacity	Price
1,000 lbs.	\$30.00	2,500 lbs.	\$48.00
1,500 lbs.	34.00	3,000 lbs.	52.00
2,000 lbs.	40.00	4,000 lbs.	65.00

Special Furnace Catalog, giving further details, dimensions, particulars, and prices upon request.

## Buckeye Ladle Babbitt Melter

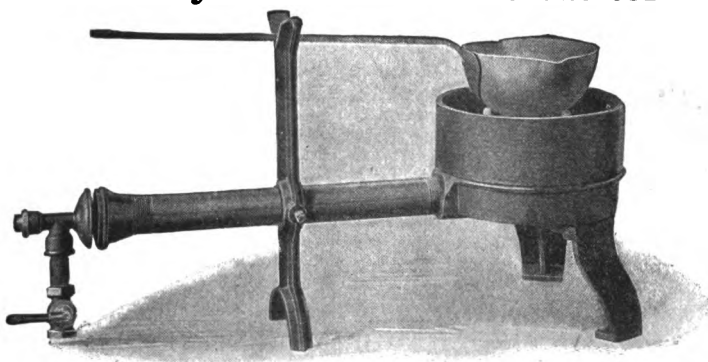


Fig. 397

This furnace is intended to meet the demand for a Babbitt Melter where babbitt can be melted in the ladle from which it is poured.

It is simple in construction. Burner has capacity of 100 feet per hour, concentrates its heat below the ladle; melting time is five minutes.

Size Ladle	Capacity	Weight	Price Each
7 inches	20 pounds	77 pounds	\$25.00

## HIGH-POWER CONCENTRIC BURNER

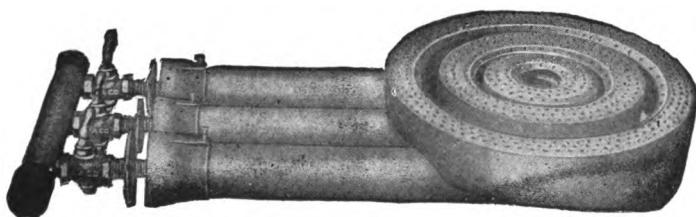


Fig. 398

Made in 1, 2, 3, 4, and 5 Rings.

These burners are substantially made, are designed to consume maximum amount of gas in a small area with the highest efficiency obtainable.

These burners are cored, and may be subjected to intense heat without impairing their efficiency.

Push-button pilot light fitted to these burners at a cost of \$4.00 extra to price below.

### DETAILS AND PRICES

No.	Diameter, Inches	Gas Connection, Inches	Gas Consumption, Cu. Ft. per Hr.	Price Each
1	5¼	¾	45	\$10.50
2	9½	1	135	26.00
3	14½	1¼	270	46.50
4	19½	1½	450	83.00
5	Made to order only. Write for price.			

Special Furnace Catalog, giving further details, dimensions, particulars, and prices upon request.

## Rotary Oil Pumping Outfits

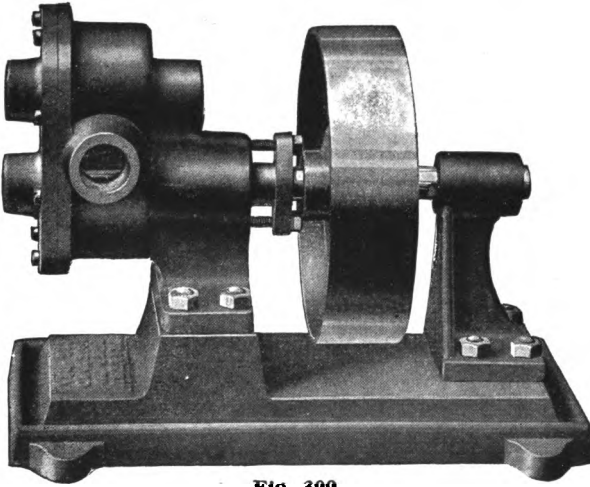


Fig. 399



Fig. 400  
Gauge



Fig. 401  
Relief Valve

### Will lift and force sixty feet

Especially designed for economical and reliable pumping and delivery, under pressure, of oils, etc., free from gritty substances.

Construction simple and substantial. Special machine cut gears operate in a tight case.

Equipped for operation by motor drive. The motor and pump are mounted on a substantial cast iron base in this construction, connected and operated by gears.

Motor speed should not exceed 1800 R.P.M. for maximum pump speed of 200 R.P.M.

Also supplied with either single tight or tight and loose pulleys for belt drive.

**Prices on Application.**

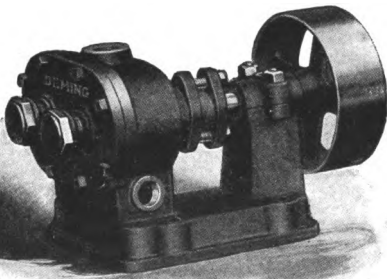


Fig. 402

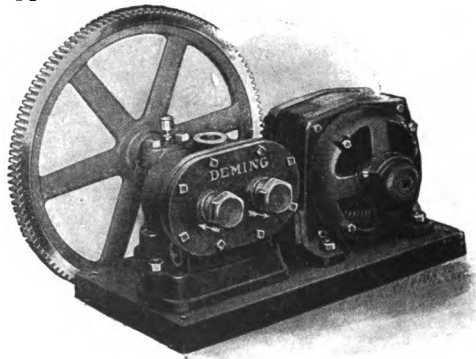


Fig. 403

**Special furnace catalog giving further details, dimensions, particulars and prices upon request.**

## Special Buckeye Combination Gas and Oil Burner

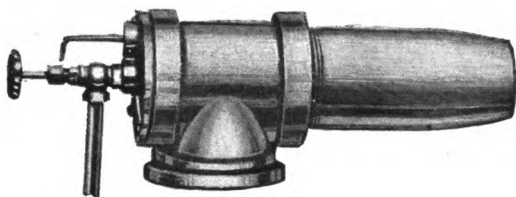


Fig. 404

To be used only in connection with Premix Burner outfits.  
Made in three sizes: No. 2 small, No. 3 medium, No. 4 large.

### Special Uses

For Cupola ignition, ladle drying and preheating for welding.

For metal melting, annealing and heat treating furnaces. For jappanning, baking, enameling and for core ovens—and all other purposes where it is desired to have perfect control over the degree of heat arising from the use of either gas or oils as fuel, or both in admixture.

By means of this special combination burner a change from gas to oil or a combination of both fuels may be instantly made by the furnace operator, for the purpose of producing any type of flame desired. No interruption to the operation of the furnace or the process of melting.

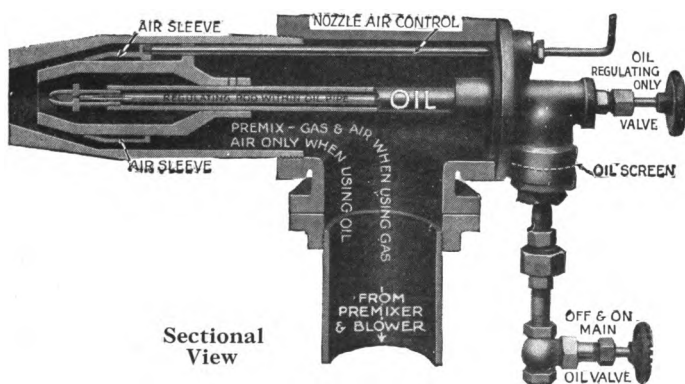


Fig. 405

Special Furnace Catalog, giving further details, dimensions, particulars, and prices upon request.



## Oil Burners

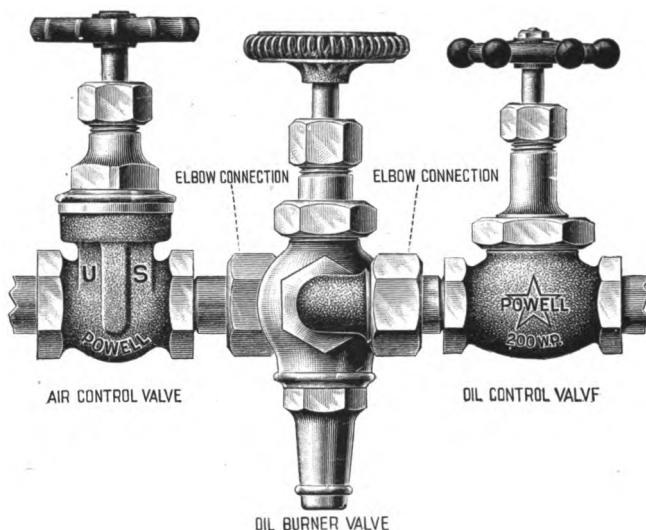


Fig. 406

**For use in Furnaces, Core Ovens, and Miscellaneous Oil-burning appliances.**

shown on the left, is the oil shut-off; the globe valve, to the right, controls the air or steam supply, while the center valve is the burner. The material used is a high-grade bronze composition.

Referring to the sectional view herewith, it will be seen that the valve (D) is designed with a needle point, thereby permitting a very fine regulation of the flow of oil. The passages throughout the entire construction are free and unobstructed, and there is, therefore, no possibility of the oil clogging up the passages and interfering with the proper flow.

Owing to the varying demand for the oil burners, they are not regularly carried in stock, and, being made only to order, are considered special.

Any orders placed with us for this material will therefore not be subject to cancellation after work has been commenced. Should we be ordered to cease work, all expense incurred will be billed immediately.

### PRICE LIST

Oil Burner, complete with Gate Valve, Elbows, and Globe Valve, $\frac{1}{2}$ -inch connection .....	\$25.00
Oil Burner only, $\frac{1}{2}$ -inch connection .....	12.00

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

The oil burner illustrated here has proven very efficient and is used by many of the leading manufacturers of oil furnaces, core ovens, etc., with great success.

The construction of these Oil Burners is such as to produce the maximum amount of heat with the least expenditure of oil. The complete device consists of the three valves. The gate valve,

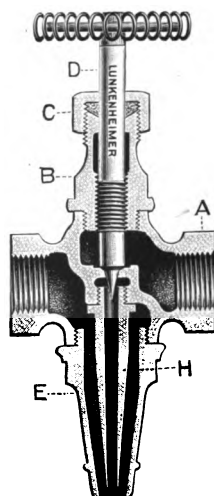


Fig. 407

**Sectional View of Burner.**

## Fire Doors and Frames

### HEAVY PATTERN

This door and frame was specially designed for setting soft metal-melting kettles in brick. Construction is extra heavy, and made of best materials for this purpose. Made in the following sized openings:

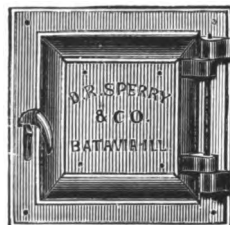


Fig. 408

No.	Width, Inches	Height, Inches	Weight, Pounds	Price Each
0	18	18	115	\$6.00
1	16	16	50	5.00
2	14	14	40	4.50
3	16	12	40	4.50
4	12	12	35	4.00
5	10	12	25	2.50
6	10	8	20	2.00
7	6 x 6 Light Chimney Door			1.00

### FURNACE TOP PLATES

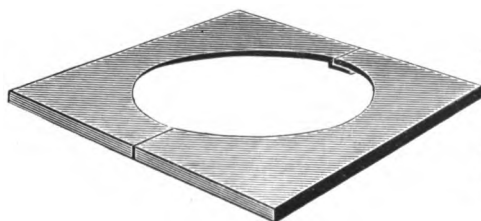


Fig. 409

These furnace top-plates are made in all sizes. We can furnish a round top-plate, made in four sections, when desired. Extra heavy in construction, and the best materials only are used.

Price per pound, 8 cents.

### FURNACE GRATES AND RESTS

There are two sizes of rests with this set: back rest,  $2\frac{1}{4}$  inches wide, and front rest, which combines jamb-plate and rest in one casting.  $7\frac{1}{2}$  inches wide.

Following prices cover grates and rests complete, as shown.

Size, Inches	Weight, Pounds	Price Each
14 x 24	80	\$5.00
14 x 30	105	6.00
18 x 36	135	6.50

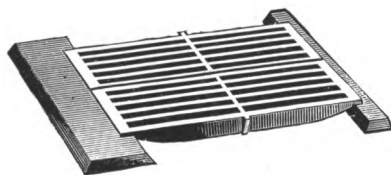


Fig. 410

We can furnish back and front rests in sizes mentioned above with double grate-bars 2 inches wide, and single grate-bars  $1\frac{1}{4}$  inches wide, in various lengths up to 36 inches, at corresponding low prices.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

## Furnace Linings

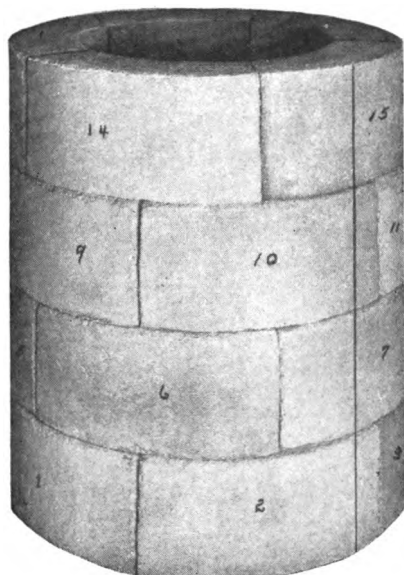


Fig. 411

Our Furnace Linings are made of best refractory materials obtainable. The materials from which these linings are made are especially adapted to withstand high temperatures. We are in position to furnish linings for almost any make and size of furnace. On Natural or Forced Draft Furnaces, standard three-inch thickness of lining will be furnished unless otherwise ordered. When ordering, state diameter of shell and height. When ordering linings for other furnaces, specify make, style, and size.

Prices and further information on application

### COVER AND BOTTOM TILE

Our Cover and Bottom Tiles are made of the same materials as our furnace linings. Following sizes carried in stock:

**Cover Tile** in 22", 24", 26", 28", and 30" diam., approximately 3" thick with a 6" hole for charging.

**Bottom Tile** in 12½", 13½", 14½", 15½" diam., and range in thickness from 3" on the smaller to 3½" on the larger sizes.

Prices on application

### PEDESTAL OR BASE BLOCKS

Following sizes of heart-shaped Blocks carried in stock:

10" x 8½" diam. x 5" high, and 8½" x 7½" diam. x 5" high.

Prices on application

### SPECIAL TILE

We can furnish any kind of Special Tile to meet any requirements. Send sketch of tile wanted when requesting prices.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

## **412 Buckeye High Temperature Furnace Cement**

### **THE MOST REFRACTORY AND HEAT RESISTING CEMENT MANUFACTURED**

For lining Crucible, Rotary and Tilting Furnaces, laying Fire, Brick and Cupola Blocks, lining Ladles, and repairing Cupola Linings, Gas, Clay and Iron Retorts, and Steel Furnaces.

### **DIRECTIONS FOR LINING CRUCIBLE, ROTARY OR TILTING FURNACES**

BUCKEYE HIGH TEMPERATURE FURNACE CEMENT should be thoroughly mixed with water to the consistency of a stiff putty.

The form which may be made of sheet iron or wood covered with iron should be the same diameter as the chamber desired in the furnace, allowing from three to four and one-half inches for thickness of walls desired. The form should be given a coat of machine oil, and set in the center of furnace.

The cement is then filled in and rammed around the form solidly; the form then removed and a slow wood fire started to dry the cement, before the full blast is turned on.

### **FOR REPAIRING ALL FURNACES, CUPOLA LININGS, GAS, CLAY AND IRON RETORTS AND LINING LADLES**

BUCKEYE HIGH TEMPERATURE FURNACE CEMENT should be mixed with water until like stiff mortar and then applied with the hands or a trowel to the thickness of about one-quarter of an inch, then smooth over with a wet brush and dry with a slow fire. Do not apply water to the brick lining first; that causes steam to arise and allows the coating to crack off. It should be applied to the dry brick. All fused fire-brick should be cut away so that the cement will be keyed in place.

It can also be mixed so that it can be painted thickly two or three times a week over the surface of the fire brick and under fire-brick furnace covers with a brush. By carefully following these directions you will have a fire-proof coating which protects the fire-brick and keeps the furnace in repair.

### **FOR LAYING FIRE-BRICK, CUPOLA BLOCKS, ETC.**

Add water to the cement to make it about the consistency of thin mortar, using it in the same manner that ordinary fire-clay is used. The best results are obtained if the brick and blocks have been sprinkled with water before laying up.

For arches of fire-brick, mix cement with water to a thin mortar so that it will run readily to the bottom of the brick in the form. After the form is removed, point up all joints.

Buckeye High Temperature Furnace Cement is put up in barrels of approximately 500 lbs. and sold strictly on trial, subject to approval.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

413

## **Non-Fusite**

**For non-crucible furnaces**

A high temperature cement especially adapted for use in non-crucible metal melting furnaces, ladles, etc.

A most efficient material with which to lay up the brick lining of all kinds of furnaces, cupolas, retorts, ladles, etc.

Non-Fusite seals the brick hermetically and makes it practically impossible for the molten metal to work its way through the joints of the lining.

414

## **BUCKEYE PERMOLTEN CLEANER**

**For brass, bronze, copper, etc.**

Especially adapted for all types open flame and crucible metal melting furnaces, also pouring ladles. Prevents slag from adhering to the linings, and effects the removal of oxides, insuring clean and sound castings.

415

## **ALUMINUM MOLD FACING**

A compound of material especially adapted for the production of smooth aluminum castings when used as a facing.

Dust lightly over the green mold and remove all surplus with bellows or air.

**Packed in barrels and bags  
Price on application.**



**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

## PREMIX BURNER OUTFIT

To be used in connection with our BUCKEYE PATENTED CRUCIBLE FURNACES, both the STATIONARY and TILTING TYPE, and our NON-CRUCIBLE FURNACES. Also adapted to be applied to other types of furnaces.

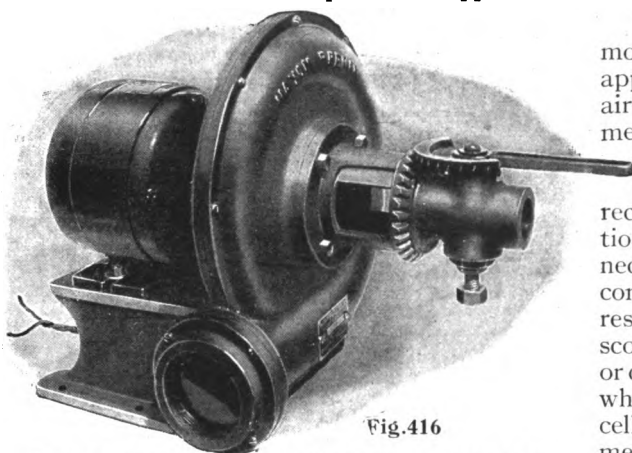


Fig. 416

Premix Burner Showing Ratio Valve Attached

that it permits unit application of gas and air to furnaces. When cutting out of operation any one or more of a battery of furnaces, it is not necessary to run a large blower which consumes unnecessary power.

The Premix Burner produces any type of flame desired, from a sharp, oxidizing, to a neutral or reducing flame. It successfully burns any kind of combustible gas. In the event of interrupted gas service, by the use of our Combination Oil and Gas Burner, in case both gas and oil are connected, change can instantly be made from gas to oil without the necessity of stopping the motor. It allows remarkable flexibility and positive precision of control in the character of the flame and is adaptable to any of our types of furnaces.

Because of its compact construction and the possibility of its being set up anywhere, the Premix Burner makes possible a saving of floor and factory space.

The Maxon Premix Burner standard equipment includes sliding disk air mixer as shown in Fig. 417.

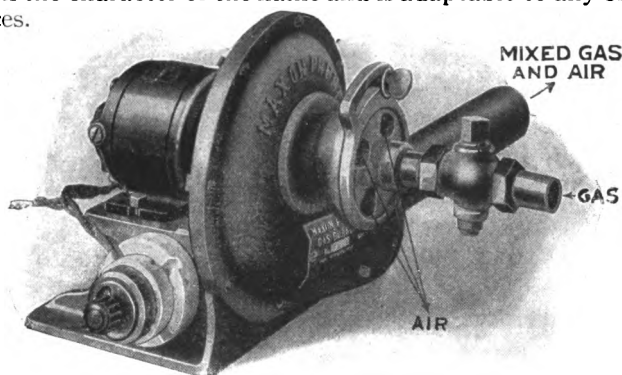


Fig. 417

Maxon Premix Showing Disc Air Mixer Attached

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

PREMIX BURNER OUTFIT

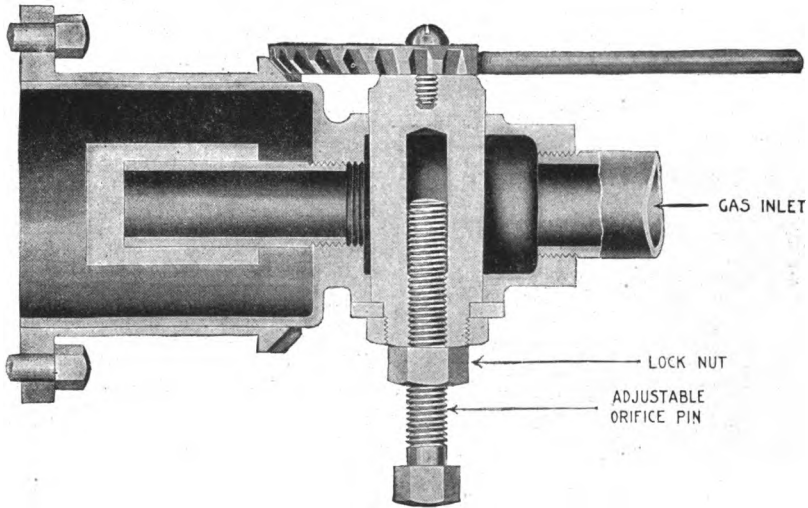


Fig. 418

In Fig. 418 we show the sectional view of the ratio valve which illustrates the internal construction and also shows just how this valve permits positive precision in control.

By means of this combined gas and air inlet valve, the proper proportions of both gas and air are automatically obtained.

The operation is so flexible that once the required adjustment is made, a pre-determined mixture of fuel and air in the correct ratio is instantly available.

The rotary sleeve over the air ports is turned simultaneously with the opening of the gas valve, and the gear teeth between the lever and sleeve constitute a graduated adjustment of the air intake.

By means of one common lever control, a fixed amount of gas is proportionally admitted with the requisite quantity of air necessary for perfect combustion. Because of this mechanical one-lever control, even the most unskilled workman may secure perfect combustion at any rate of gas consumption.

The Maxon Premix Burner is made in various sizes to accommodate various sizes and capacities of furnaces, and ranges in Horse-power required for operation from 1-10th to the largest size, one Horse-power; for use on the largest of our furnaces.

When the Maxon Premix Burner is supplied with ratio valve no additional charge is made.

**Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.**

PREMIX BURNER OUTFIT

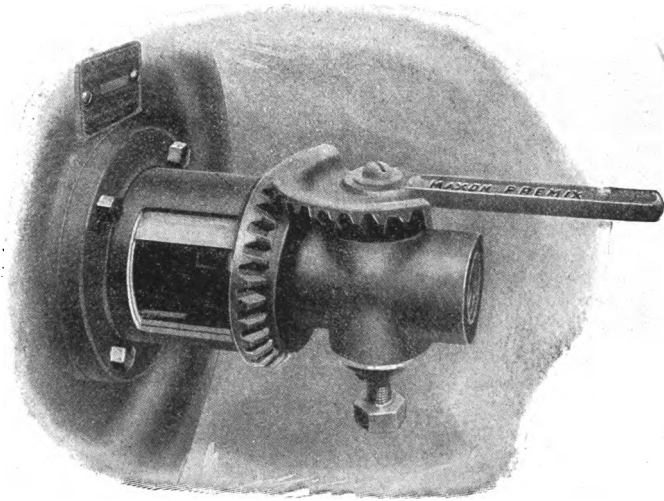


Fig. 419

In Fig. 419 we show an enlarged view of the ratio valve which is a part of the Maxon Premix Burner, but is not sold separately. The gas control of the ratio valve is of the stop-cock type as the core is of the quick closing design, but a novel feature is the orifice arrangement consisting of an adjusting pin which runs up into the core from below. The stop-cock is cast as an integral part of the mixer which makes the appliance compact and altogether mechanically perfect.

420

### Special Attention

Special attention devoted to oil and gas burning appliances and equipment for all foundry purposes.

Submit details and specifications of your requirements and we will gladly give you estimates and the full benefit of our experience.





## Victor Type Blower

Single or Tight and Loose Pulleys.

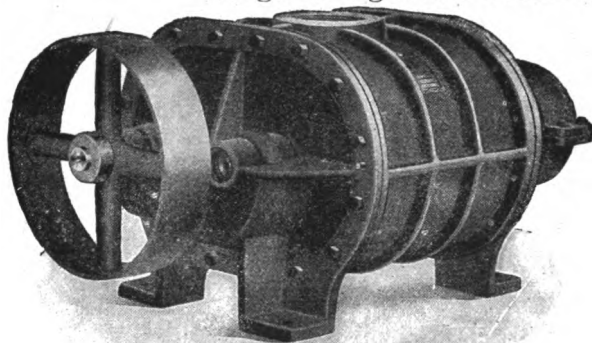


Fig. 421

The Victor type of blower is arranged for pressures up to  $2\frac{1}{2}$  lbs.

These blowers have no valves or valve parts to get out of order. They are balanced at all speeds, and as capacity is governed by speed, any capacity up to maximum can be had by changing it.

These blowers are made with two lobes, and are the only two moving elements. There is no internal contact or wear, therefore the maximum efficiency is maintained.

The impellers are driven by a pair of accurately cut gears and are enclosed in housing, as shown at extreme right in above illustration.

No.	R. P. M.	Pressure Per Sq. In.	Maximum Capacity	Maximum H. P.	Size Pulleys	Weight Pounds	Diam. Outlet	Price	
			Per Min.					Single Pulleys	T. & L. Pulleys
35	1,000	1 lb.	77	.6	7x1½	100	2.5	\$45.00	\$48.00
40	900	1 lb.	110	.9	8x2	140	2.5	70.00	74.00
50	600	1 lb.	150	1.2	10x2½	250	3.0	120.00	125.00
60	400	1 lb.	213	1.4	16x3	540	4.0	250.00	259.00
17½	1,000	2½ lbs.	40	.9	7x1½	75	2.0	45.00	48.00
20	900	2½ lbs.	52	1.2	8x2	110	2.0	70.00	74.00
25	700	2½ lbs.	83	1.7	10x2½	170	2.5	120.00	125.00
30	500	2½ lbs.	124	2.1	16x3	350	3.0	250.00	259.00

### NON VIBRATING RELIEF VALVE

We offer the Non-Vibrating Relief Valve for protecting positive pressure blowers against higher pressures than designed for.

If you restrict or close the discharge openings before stopping the blower the pressure will rise considerably and overload the blower unless a relief valve is provided.

Are built for all sizes of Positive Pressure Blowers from 1 inch to 12 inches.

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

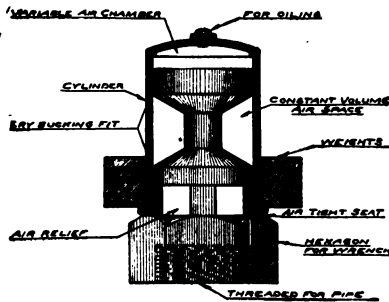


Fig. 422

# VICTOR BOSTON TYPE BLOWERS

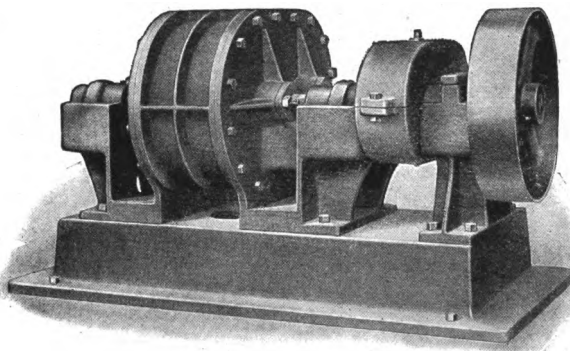


Fig. 423

Victor Boston Type is the name to our line of small-capacity blowers for pressure of 3 to 5 lbs. per square in.

They are used in such services as brazing forges, oil and gas furnaces, pneumatic conveying, etc.

The blower has two 2-lobe rotary impellers operating within a cylinder. These impellers have heavy internal ribs, are carefully finished on outer surfaces, and do not come in contact with each other or with the cylinder in which they revolve. There is a small and accurately-gauged clearance at all points.

Figure illustrates a blower with pulley. It will be seen that there are six bearings, all of which are ring-oiling, dust-proof type. All are fitted with renewable phosphor-bronze sleeves, having continuous oil grooves, which provide reliable lubrication.

The blower shafts are supported outside the gear housing by heavy double outer bearing. This construction insures correct meshing of the gears and avoids strains on the shafts. The gears are enclosed in a cast iron housing and run continuously in a bath of oil. There is a heavy one-piece bed-plate extending full length under blower and outer bearing, insuring perfect and permanent alignment of all parts. Cylinders are well ribbed to give strength and rigidity. They are one-piece construction on all machines except Nos. 30B, 31B, and 60B.

All stock blowers have inlet at bottom and discharge at top.

Size No.	Pressure Per Sq. in	Maximum Cap., Cu. Ft. Per Min.	Max. H. P.	Max. R. P. M	Weight, Pounds	Pipe Sizes	Pulley Sizes	Price
35-B	3	70	2	1,100	200	2½	7x1½	\$90.00
40-B	3	100	3	1,000	300	2½	8x2	120.00
50-B	3	200	5	850	400	3	10x2½	175.00
60-B	3	375	7½	700	730	4	16x3	335.00
17-B	5	40	2.2	1,200	175	2	7x1½	90.00
20-B	5	60	3	1,100	250	2	8x2	110.00
25-B	5	100	4½	900	350	2½	10x2½	160.00
30-B	5	190	6½	750	600	3	16x3	300.00
31-B	5	260	8½	750	630	3	16x3	320.00

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

## The Champion Fan Blower

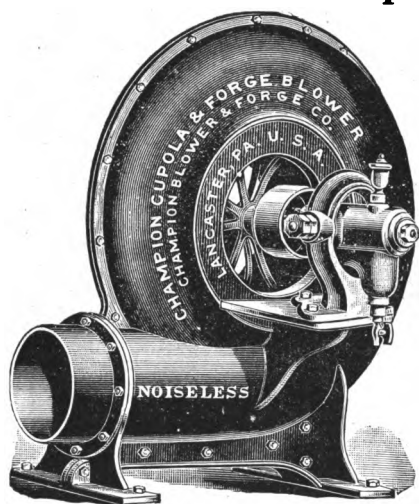


Fig. 424

The Champion Fan Blowers are built especially for use where a large volume of blast is required instead of great pressure. They are adapted for steam boilers, puddling and heating furnaces, dry-rooms, refrigerators, forge fires, etc.; also for ventilation. They are constructed in the best possible manner, with only the highest grade material and workmanship. The journal bearings and blast wheels used on these Blowers are adjustable. Our table gives speeds for a 2 and 4-oz. of blast per square inch, which meets usual requirements when a blower of full

capacity is used, and blast pipes of proper area in proportion to length. Two-ounce pressure will be sufficient blast for steam boilers, etc., also for ventilating. Four-ounce pressure with blast pipes in right proportion will give good results on puddling and heating furnaces. The best results are obtained when blower is close to the furnaces, etc., and elbows, especially short turns, are avoided.

All blowers are furnished in the regular discharge, as above, but can be furnished with left hand, horizontal, upright, or down discharge, when desired.

No.	Price	Weight Each, Pounds	Inside Diam. Inlet	Inside Diam. Outlet	No. of Pulleys	Diam. of Pulleys	2-Ounce Blast		4-Ounce Blast	
							R.P.M.	H.P.	R.P.M.	H.P.
½	\$12.00	27	4½	3½	1	2 9/16	3,300	1/5	4,500	½
1	15.00	55	5	4	1	3	3,000	3/10	4,000	¾
2	20.00	70	5¾	4¾	1	3	2,600	1	3,600	1½
3	25.00	125	6½	5¾	1	3½	2,300	1½	3,200	2
4	33.00	190	7½	7½	2	4¼	1,928	2½	2,682	4
5	44.00	260	9	9	2	5½	1,638	3	2,279	5
6	55.00	350	10½	10½	2	6	1,410	3	1,961	8
7	70.00	525	12	12	2	6¾	1,194	4	1,662	9
8	90.00	850	14	14	2	8	1,018	6	1,417	12
9	150.00	1,150	16	16	2	9	878	8	1,234	14
10	200.00	1,470	18	18	2	10	766	10	1,065	15

Special Furnace Catalog giving further details, dimensions, particulars, and prices upon request.

## Crucibles

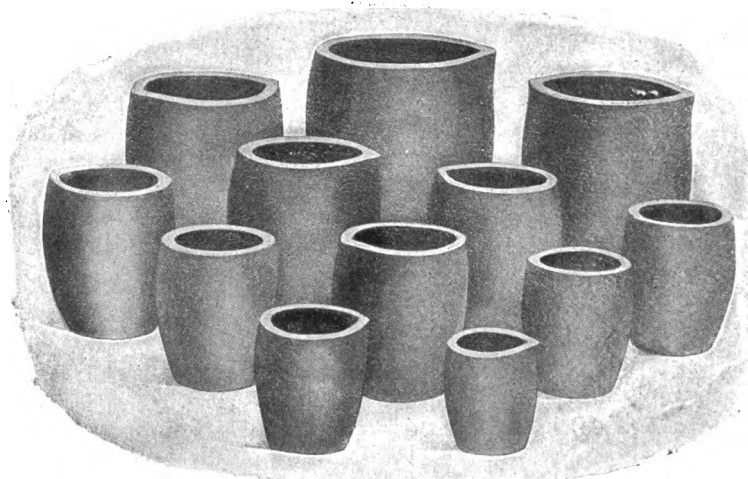


Fig. 425

Crucibles should be unpacked immediately and stored in a warm, dry place. Assume that they are damp, and you will never have a scalped pot, for you will then always give them the proper care. The longer they are kept in your foundry under correct conditions the better.

### CARE IN ANNEALING

A crucible should be annealed by being gradually brought up to a temperature of 300 degrees Fahr., or over. If this is done slowly there is no danger of either a scalp or an internal fracture, with the consequent leak afterwards. Always start a new crucible in a slow fire. It is the first heat which needs the care and on which so much depends. Wet coke or coal, which produce steam and moist gases, should never be used.

Tongs and Shanks should fit the pot, to start with, and care should be taken to keep them in good condition. On pots holding over 150 pounds of metal tongs with double prongs, and preferably of the "grab" pattern, should be used. Shanks of the plain wide ring type are best.

Leaving the metal in the fire after it is ready to pour (usually called "soaking") is to be avoided, as it is exceedingly hard on the already softened pot. Clinkers should be removed from the sides of the pot, as the tongs are put on, and from the bottom of the pot before it is set on the floor, which should be covered with a bed of dry sand. If possible, recharge the crucible and return it to the fire at once. Have it cool as slowly as possible if it is not to be refilled. Never allow it to stand in a draft from an open doorway or window.

STANDARD SIZES OF CRUCIBLES

No.	Height Outside, Inches	Diameter at Top, Outside, Inches	Diameter at Bilge, Outside, Inches	Diameter at Bottom, Outside, Inches
6	6½	5¼	5⅛	3¾
7	6¾	5½	5½	4
8	7¼	5¾	5¾	4¼
9	7⅝	6	6¼	4½
10	8	6	6½	4¾
12	8¼	6¾	6¾	5
14	8⅝	7	7¼	5½
16	9½	7¼	7¾	5½
18	10	7½	8	5½
20	10⅝	7¾	8½	6¼
25	11	8¼	9	6¼
30	11½	8¾	9⅜	7
35	12¼	9⅜	10	7¼
40	12¾	9⅝	10½	7⅝
45	13¼	10	10⅞	7¾
50	13½	10¼	11½	8
60	14⅞	10½	11½	8½
70	14⅞	10¾	12	8½
80	15½	11½	12½	8½
90	16	11¾	12¾	9
100	16½	12¼	13¼	9½
125	16¾	12½	14	10
150	19	13½	14⅞	10⅝
175	19¾	14⅜	16	11
200	20⅝	15	16¾	11⅞
225	20⅞	15	16¼	12½
250	21	15½	17¼	11¾
275	22½	15	17⅞	12½
300	22½	16¼	17⅝	12¾
400	24½	17½	19½	14

PHOSPHORIZERS, STIRRERS, SKIMMERS, ETC.



Fig. 426

These can be furnished in various sizes and styles.  
Give us your specifications.

## Buckeye Special Side Lift Crucible Tongs

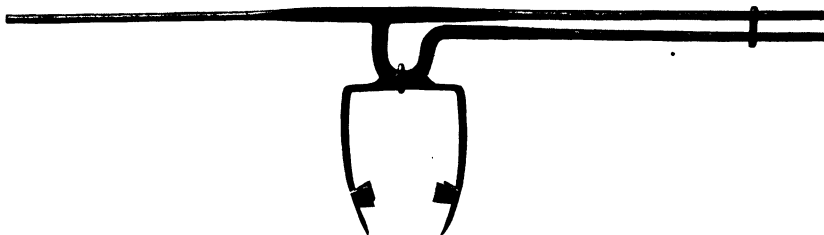


Fig. 427

Especially adapted for removing crucibles from furnaces set on the floor.

Made to fit any size crucible.  
Prices on application.

### SPECIAL TONGS

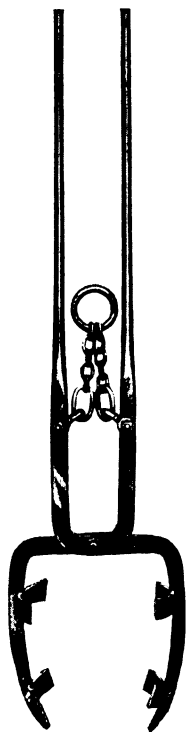


Fig. 428  
Self-Gripping



Fig. 429



Fig. 430

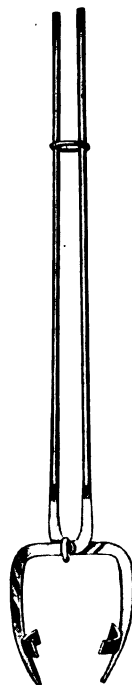


Fig. 431  
Eye Bolt

CRUCIBLE TONGS

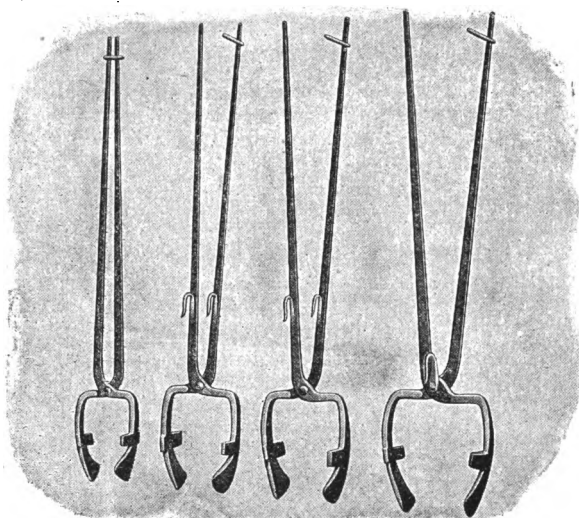


Fig. 432

Can be furnished Plain, Eye Bolt, or with Hook, at same price.

Nos. 14 to 20 .....	\$10.00	Nos. 70 to 90 .....	\$17.00
Nos. 25 to 35 .....	12.00	Nos. 100 to 150 .....	20.00
Nos. 40 to 50 .....	13.50	Nos. 175 to 225 .....	25.00
Nos. 60 to 70 .....	15.00	Nos. 250 to 300 .....	32.00

PICK-UP TONGS

Manufactured of best iron, hand forged.

Length	Price Each
3 feet .....	\$4.00
3½ feet .....	4.10
4 feet .....	4.20
4½ feet .....	4.30
5 feet .....	4.40
5½ feet .....	4.70
6 feet .....	5.00

SHAKE-OUT TONGS

Length, Inches	Price Each
14 .....	\$1.65
16 .....	1.90
18 .....	2.10
20 .....	2.30
24 .....	2.50
30 to 60 .....	3.25
Malleable, 24 inches .....	1.00



Fig. 433



Fig. 434

### CRUCIBLE LIFTER

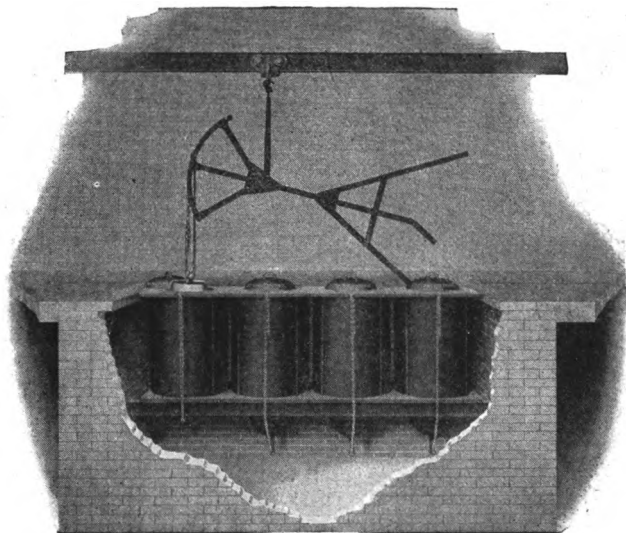


Fig. 435

This is the handiest device ever invented for lifting crucibles from brass furnaces. The lifting power used in pulling out any size crucible is reduced to a minimum. It consists of I-beam supporting trolley, from which levers are suspended. The quadrant is grooved, and in this groove is carried a chain with a hook at lower end, which can be secured to the crucible tongs. This Crucible Lifter does away with hardship and dangers to the operator.

Price.....\$36.00

### Crucible Tongs

#### With Bail

Built extra heavy throughout. Recommended for large crucibles.

For Crucibles Size	Price Each
14 to 20.....	\$15.00
25 to 40.....	17.50
40 to 50.....	20.00
60 to 70.....	22.50
80 to 90.....	26.00
100 to 150.....	30.00
175 to 225.....	35.00
250 to 300.....	40.00

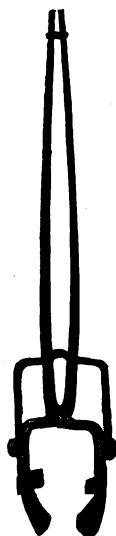


Fig. 436



DELTA CRUCIBLE  
TONGS

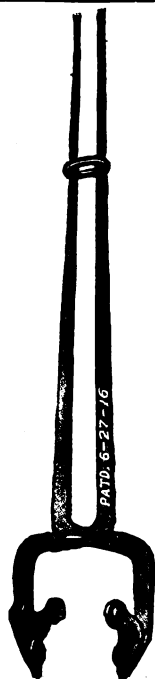


Fig. 437



Fig. 438



Crucible tongs will stop one of your "leaks." They prolong the life of your crucibles, and that means money-saving to you.

Try a pair at our expense and prove for yourself that your crucibles will last from 15 to 25% longer. Then figure out how much that saving in cost of crucibles means to you, and you will see that the cost of the tong is a small factor.

It is not that they wear any thinner than with the old type tongs, but that they wear away much less rapidly when the pressure is distributed over so many points. The pins don't fuse and the pads don't break.

PRICE LIST

Crucible No.	Price Each
16	\$28.50
18-20	31.00
20-25	33.00
30	35.00
35	37.50
40-45	38.50
50-60	40.00
70-80	44.00
90	50.00
100	57.50
125	66.00
150	80.00

## The Buckeye Crucible and Ladle Hold Back

Patented.

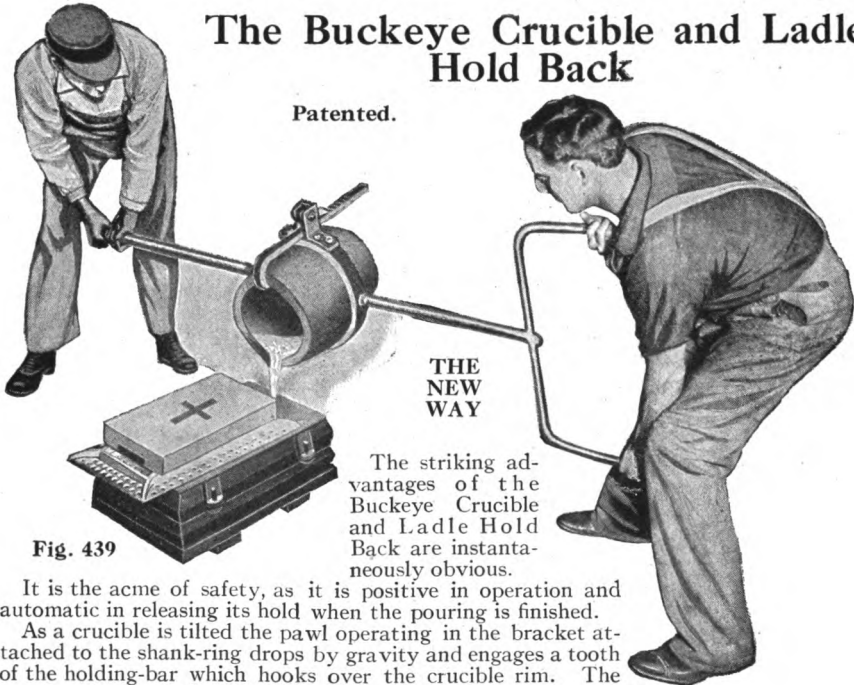


Fig. 439

The striking advantages of the Buckeye Crucible and Ladle Hold Back are instantaneously obvious.

It is the acme of safety, as it is positive in operation and automatic in releasing its hold when the pouring is finished.

As a crucible is tilted the pawl operating in the bracket attached to the shank-ring drops by gravity and engages a tooth of the holding-bar which hooks over the crucible rim. The heavier the load of molten metal in the crucible or ladle the tighter it holds. A partially empty crucible is held just as safely. No danger of slippage, as in the case of a friction cam. The Buckeye Hold Back is positive and sure, and its pull is central with the crucible when pouring.

No uncertain, unequal side-grip. When the crucible or ladle is returned to an upright position the pawl drops out of the locking position automatically by gravity, and the crucible or ladle is freed for removal from shank.



Fig. 440

THE OLD WAY

## Tubular Steel Sprue Cutter

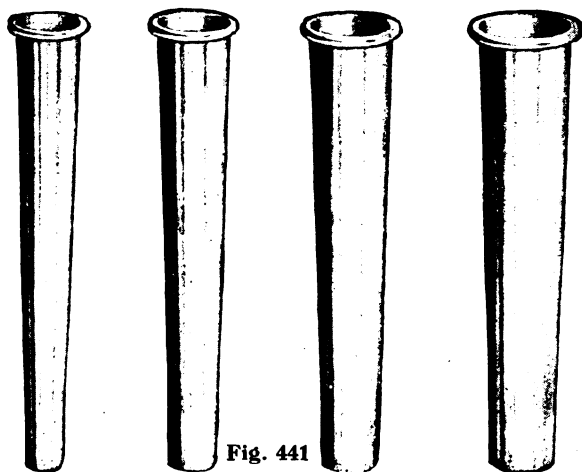


Fig. 441

No. 1.—6 in. long, $\frac{7}{8}$ in. top, $\frac{1}{2}$ in. bottom	80 cents each
No. 2.—6 in. long, 1 in. top, $\frac{5}{8}$ in. bottom	80 cents each
No. 3.—6 in. long, $1\frac{1}{8}$ in. top, $\frac{3}{4}$ in. bottom	80 cents each
No. 4.—6 in. long, $1\frac{1}{4}$ in. top, $\frac{7}{8}$ in. bottom	80 cents each
Special sizes to order	\$1.00 each

## BRASS SPRUE CUTTER

Size	Price, 40c
$\frac{1}{2}$ x 10	" 45c
$\frac{5}{8}$ x 10	" 50c
$\frac{3}{4}$ x 10	" 55c
$\frac{7}{8}$ x 10	" 60c
1 x 10	" 70c
$1\frac{1}{4}$ x 10	" 75c
$1\frac{1}{2}$ x 10	" 80c
$1\frac{3}{4}$ x 10	" 85c
2 x 10	" 85c

Special sizes to order



Fig. 442

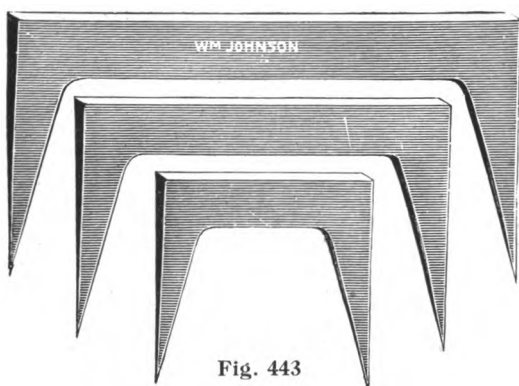


Fig. 443

## STEEL PINCH DOGS Forged from Bar Steel

Square corners over legs, making easy driving.

The only pinch-dog that gives entire satisfaction.

Intermediate sizes made when ordered.

No.	00	0	1	2	3	4	5	6	7
Size of Steel	13/16	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Length	$\frac{3}{4}$	1	$1\frac{1}{4}$	2	$2\frac{3}{4}$	3	4	5	6
Per dozen	\$2.00	\$1.50	\$1.50	\$2.00	\$2.50	\$3.00	\$3.50	\$4.50	\$5.50

## Spill Trough

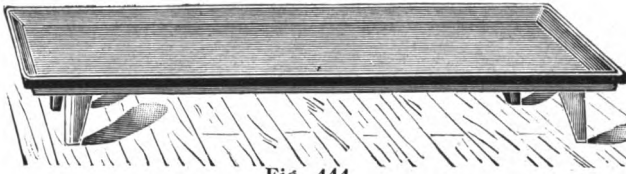
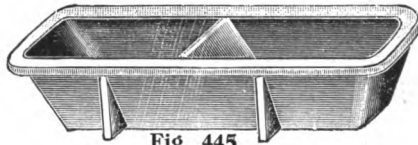


Fig. 444

Height	Length	Width	Price
10 inches	74 inches	14 inches	\$18.00
10 inches	72 inches	24 inches	30.00

## INGOT MOLDS

No Blow  
Holes



Solid Clean  
Bottoms

Fig. 445

Malleable Iron.....	Price, \$4.75
Gray Iron.....	Price, 4.25
Size Inside Measure	Weight
Double Mold, 13x3½x2½ inches.....	24 lbs.

## THE EASY CAR PUSHER

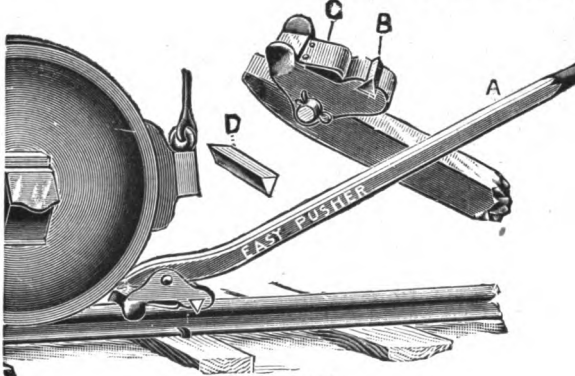


Fig. 446

Is made of the best material. The bar "A" is steel; the shoe is malleable; the bit "D" is of the finest tool steel, the spring "C" is also of fine steel. Weight, 20 lbs. Length, 5½ feet.

As shown in the cut, the heel has lugs extending downward on both sides of the

rail, so as to hold it firmly in position and prevent it slipping sideways. The triangular steel bit cuts into the rail when pressure is applied and prevents slipping backward, even though the rail is icy, greasy, or wet.

This bit can be inverted. Each one has three sharp edges. When pressure is released, the steel spring lifts the steel bit from the rail, thus preventing it from being dulled by sliding over the rail when following the wheel. Two triangular steel bits with each pusher.

Price each, \$8.00

## Mortars and Pestles

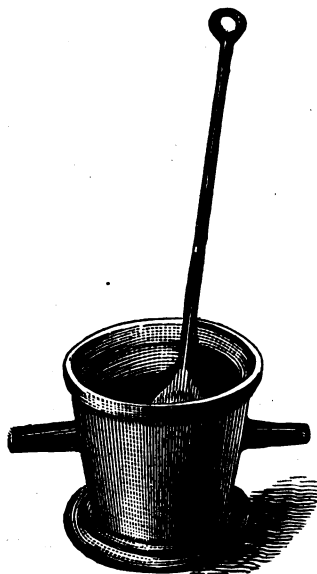


Fig. 447

- No. 8. Capacity, 1 gallon; diameter at top,  $9\frac{1}{2}$  inches; depth inside, 9 inches.  
Price..... \$8.00
- No. 9. Capacity, 2 gallons; diameter at top,  $11\frac{1}{2}$  inches; depth inside,  $8\frac{1}{4}$  inches.  
Price..... \$10.00
- No. 10. Capacity,  $3\frac{1}{2}$  gallons; diameter at top, 13 inches; depth inside, 12 inches.  
Price..... \$18.00
- With Tee-shaped  $\frac{7}{8}$ -inch Round Iron Handle, when desired.  
Hole in bottom, if desired.

## BELL SHAPE MORTARS AND PESTLES



Fig. 448

The manufacturer of these mortars and pestles has made them for many years, and by improving the process of manufacture has produced a mortar which for strength, durability, and fine finish is unsurpassed.

Diameter, Inches	Weight, Pounds	Capacity	Price Each
4	3	$\frac{1}{2}$ pint	\$0.70
$4\frac{1}{2}$	5	$\frac{3}{4}$ pint	.90
5	6	1 pint	1.20
$5\frac{1}{2}$	8	1 quart	1.75
6	9	$1\frac{1}{2}$ quart	2.35
$6\frac{1}{2}$	12	$1\frac{3}{4}$ quart	2.50
$8\frac{3}{4}$	19	$3\frac{1}{2}$ quart	4.00
10	31	5 quart	6.00
11	39	$7\frac{3}{4}$ quart	8.00
12	46	$9\frac{1}{2}$ quart	9.25
$13\frac{1}{2}$	61	12 quart	13.25
17	138	32 quart	30.00

## Gasoline Blow Torch



Fig. 449

This torch is a leader. It will burn in windy or stormy weather; is fitted with hook and strap for holding soldering iron. This tool has the advantage of super-heating and properly mixing the air before it enters the combustion chamber. The best results are guaranteed to the user.

Capacity, about one quart.

Price, \$12.00 Each.

## DOUBLE JET GASOLINE BLOW TORCH

The torch will utilize every ounce of gasoline, owing to its perfect combustion. The double jet burners produce a much higher degree of heat than any other hydro-carbon burner produced to-day. Capacity, one quart.

Price, \$16.00 Each.

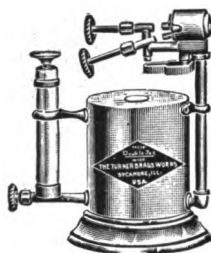


Fig. 450

## BUCKEYE GAS BLOW TORCH

These blow torches are now extensively used for skin drying molds, also by machinists for hardening and brazing work that requires great heat. Requires a fan blast or compressed air at low pressure.

### Size No. 1 Blow Torch

Size 5/16 air jet, 1-inch gas opening, steel tubing with stop-cocks, requires a 3/4-inch gas supply pipe and tap. The stop-cocks are both under perfect control of the thumb of the hand holding the blowpipe.

Price without Hose, \$15.00.

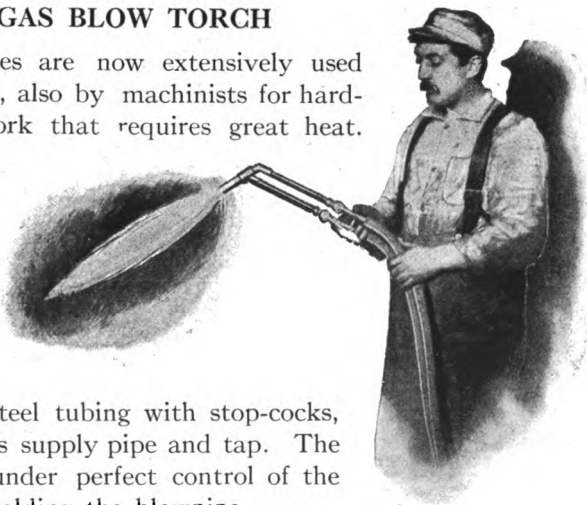


Fig. 451

452

### Size No. 2 Blow Torch

Size 7/16 air jet, 1 1/4 gas opening, steel tube with stop-cocks; requires a 1-inch gas supply and tap. Stop cocks under perfect control.

Price without Hose, \$30.00.

## Buckeye Water Tumbler

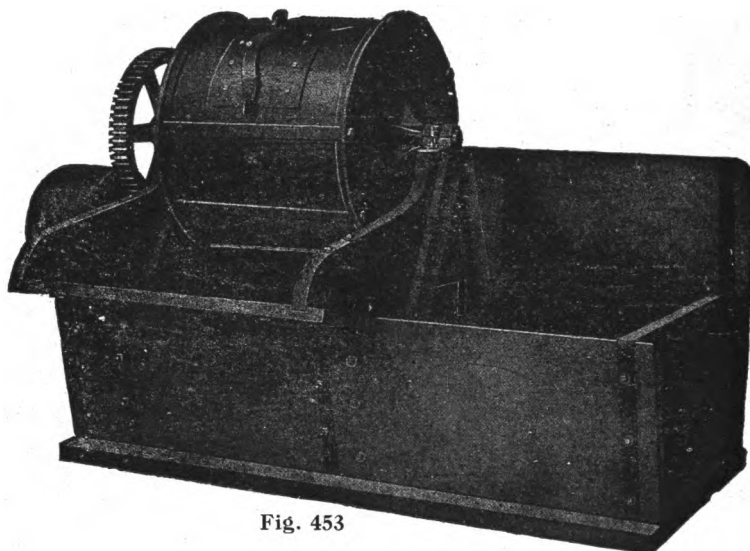


Fig. 453

The Buckeye Water Tumbler is an extensively-used machine in foundries for the cleaning of brass castings and for crushing cinders.

The barrel proper is made of  $\frac{1}{4}$ -inch steel plate, and is  $27\frac{1}{4}$  inches in diameter on the inside and 24 inches long. The heavy cast iron heads are held in place with steel tie rods. The door is easily removable, and is held in place with cast steel lugs.

Tight and loose pulleys 16 inches by 3 inches are furnished with the barrel. The tumbler is usually operated at about 180 R. P. M., and requires a maximum of  $\frac{3}{4}$  H. P.

The steel barrel is mounted on a clear cypress tank made with slip-tongued and white-leaded joints. Steel reinforcing straps and large lag screws make the tank very rigid in construction. A No. 16-gage steel tray is furnished. The floor space required is 53 inches by 88 inches.

This tumbler is furnished with either of three linings, as follows:

Buckeye Water Tumbler, with $2\frac{3}{4}$ -inch thick hardwood lining.....	\$240.00
Buckeye Water Tumbler, with $\frac{5}{8}$ -inch thick cast iron lining.....	250.00
Buckeye Water Tumbler, with 1-inch thick cast iron lining.....	265.00

Shipping weight, between 1,000 and 1,500 pounds, depending on the kind of lining ordered.

### L i n i n g s

Linings for Buckeye Water Tumbler.

$2\frac{3}{4}$ -inch Hardwood.....	\$9.00 per set
$\frac{5}{8}$ -inch Cast Iron.....	21.00 " "
1 -inch Cast Iron.....	32.40 " "

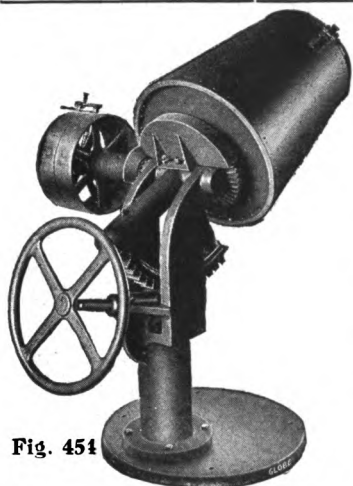


Fig. 451

## TILTING TUMBLING BARRELS

The construction is extremely simple. Its strength and solidity are apparent.

There are no delicate or complicated parts to get out of order. It is not necessary to stop this barrel when refilling or emptying it. It can be inspected while in motion; the operator can tell just how the work is progressing, and when it is finished, you do not tumble it unnecessarily.

Following sizes are made with steel, cast iron, octagon-shaped, or wooden shell.

No.	Diam.		Depth In.	Pulley Speed R. P. M.	Floor Space, Inches	Shipping Weight	Price
	Top	Bottom					
10	10	15	18	200	27 x 30	350	\$81.00
14	14	20	22	150	34 x 43	675	143.00
16	16	22	23	150	34 x 44	700	150.00
18	18	24	24	150	34 x 45	725	175.00
20	20	28	28	150	40 x 54	950	200.00
24	24	32	28	160	48 x 60	1,500	375.00
28	28	36	31	160	50 x 64	1,550	430.00
32	32	40	36	160	54 x 70	1,600	443.00

## SIEVE CAPS

This sieve cap is used to separate tumbled work from the tumbling medium. In separating the cap is secured to the barrel; the barrel is tilted and run for a few minutes during which the tumbling medium is separated from tumbled work.

### PRICES

No. 10	Nos. 14, 16, 18	No. 20	Nos. 24, 28, 32
\$5.00	\$7.50	\$9.00	\$10.00

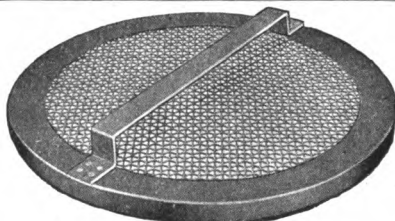


Fig. 455

## HORIZONTAL TUMBLING BARREL

This type of tumbling barrel is recommended for wet tumbling and large size pieces.

Its spacious opening of 24"x10" enables it to tumble pieces that could not be handled in other sizes. Made of cast iron.

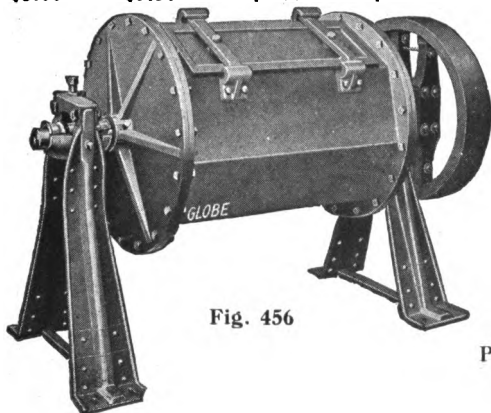


Fig. 456

Diam.	Length	Floor Space	Ship'g Wt.	Price
20"	30"	30"x45"	950 lb.	\$250.00



## Ding's Type M Electro-Magnetic Separators

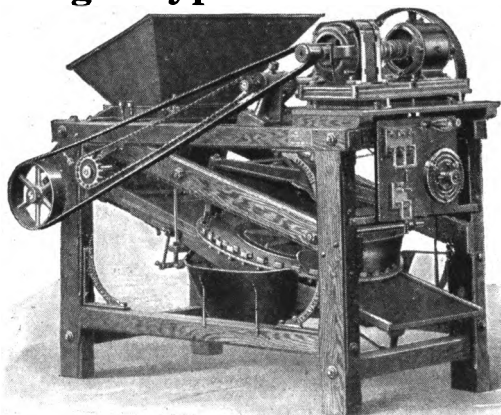


Fig. 457

This magnetic separator, known as the disk type, is especially recommended for use in brass foundries and metal refining works. The continued increasing demand for these machines justifies the claim that it is the best magnetic separator on the market for removing iron from brass and copper

turnings, borings, punchings, washings, skimmings, fine scrap, etc. With the new form of magnets and new conveyor supports, it is now better than ever.

Size No.	Capacity Per Hour, Pounds	Shipping Weight, Pounds	Driving Pulley, Inches	Speed, R.P.M.	Mechanical H. P.	Watts to Energize	Floor Space
0	100	400	1½ x 6	440	¼	100	18x36
1	300	700	2 x 6	440	¼	200	24x48
2	700	1,400	2 x 12	440	½	300	36x72
3	1,000	2,000	3 x 12	440	¾	400	42x90

The capacities named are based upon the treatment of ordinary brass chips that are free from moisture or grease to obtain perfect efficiency with one treatment. These capacities may be greatly increased on certain kinds of heavy metal chips. It is common practice in some plants to run these separators at double their rated capacity.

These separators are built in various modified forms to meet special requirements. Magnets can be energized only with direct current.

**Prices and special bulletin on application.**

For plants having a line shaft and direct current, a plain belting machine is suitable.

For plants having a line shaft, but no direct current, a belt-driven machine with generator is necessary.

For plants having no line shaft, but having direct current, a motor-driven machine is necessary.

For plants having no line shaft and no direct current, a machine with motor generator set is necessary.

DING'S PULLEY TYPE ELECTRO-MAGNETIC SEPARATORS

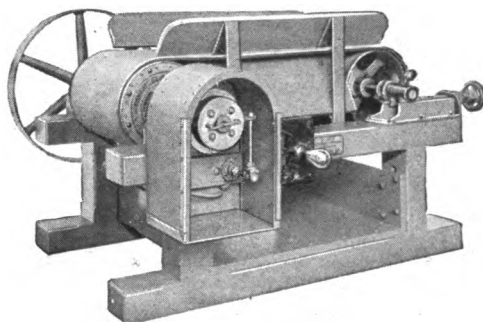


Fig. 458

**Size 12 inches by 18 inches, with Steel Housing for  
Contact Parts Removed**

This separator is especially recommended when large capacity in a single unit is desired, or when, for some other special reason, this type of machine is most available. The advantages of this separator over the ordinary drum type lie in its greater magnetic strength; in having no commutator to flash and cause trouble, as the electric circuit is not broken; and in having no brush or scraper to remove the attracted iron. There are no important wearing parts except the conveyor belt and shaft bearings. With reasonable care they should run for many years without needing repairs.

This machine can be furnished with either bilge boards or hopper.

Size of Magnet	Capacity Per Hour	Shipping Weight	Driving Pulley	Speed, R.P.M.	Floor Space	Power Required
9"x12"	600	650	2"x18"	80	36"x48"	½ H. P.
9"x18"	1,000	850	2"x18"	80	40"x48"	¾ H. P.
12"x18"	1,500	1,200	3"x24"	60	43"x60"	1 H. P.
12"x24"	2,000	1,600	3"x24"	60	50"x60"	1 ¼ H. P.
15"x36"	4,000	2,700	4"x30"	40	58"x60"	2 H. P.
18"x48"	6,000	5,600	4"x36"	30	70"x60"	3 H. P.

The above capacity ratings are based upon the handling of ordinary brass turnings.

Magnets can only be energized with direct current.

Prices on application.

## Magnetic Pulleys

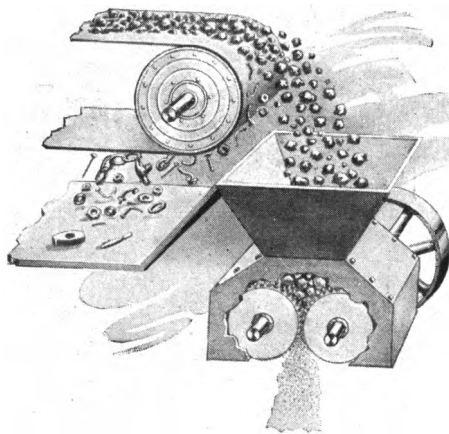


Fig. 459

Magnetic Pulleys are recommended for use where coarse material is to be handled, where the iron to be extracted is limited in quantity, and where large capacity is important. This equipment is used extensively to protect crushing and grinding machinery from breakage and damage due to "tramp" iron found in various kinds of material. It is also used for removing iron from material for other reasons, both mechanical and chemical.

### MAGNETS CAN ONLY BE ENERGIZED WITH DIRECT CURRENT

#### OPERATION

The operating principle of these machines is very simple. The material to be separated is fed upon a horizontal (or a horizontally inclined) belt conveyor passing over a magnetized pulley. The non-magnetic material falls by gravity from the crown of the pulley vertically into a suitable receptacle, while the iron and magnetic material are attracted and held firmly against the belt until it is carried to the point where the belt leaves the pulley on the under side, and is there discharged back of a partition. The belts are usually run at a speed of about 100 feet per minute.

The capacity of the magnetic pulleys depends upon the speed of the belt conveyor, the density of the material, and how thinly it must be spread upon the belt in order to obtain the desired efficiency of separation.

Made in the following diameters: 12, 15, 18, and 24 inches, and in lengths of from 12 to 48 inches.

Prices on application.

NOBLE'S ELECTRO-MAGNETIC SEPARATOR

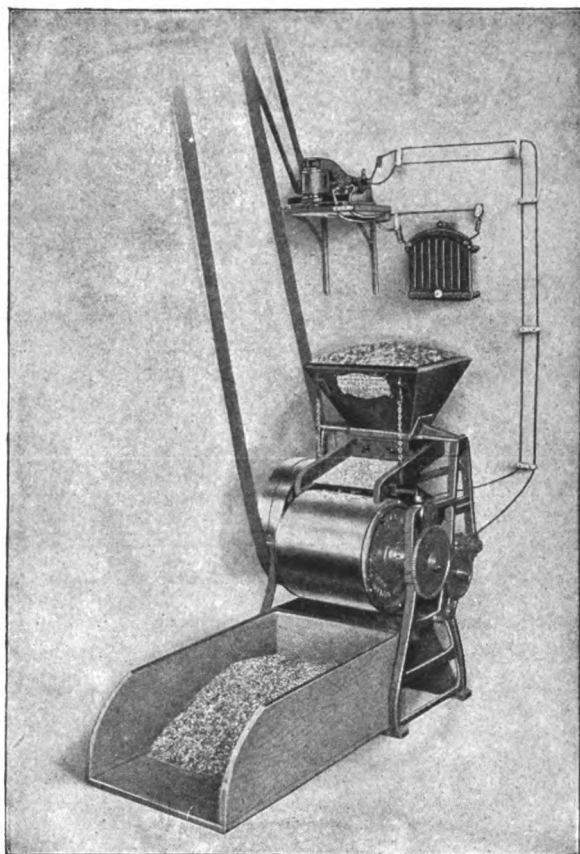


Fig. 460

This cut shows the Noble's Electro-Magnetic Separator with improved shaking device and dynamo. This machine is furnished with long tray and gear covering (not shown).

Electro-magnetism is used exclusively. The current can be adjusted to a nicety, and when not in operation can be cut off entirely.

The separator is very simple and substantial in construction, and with ordinary care and attention ought to last indefinitely, the only part requiring renewal being the brass cover on magnetic drum, which ordinarily will last a year, and can be replaced at very small cost.

Height	Width	Length	—Drum— Diam.	Width	Capacity Per Day
3 ft. 10 in.	2 ft. 6 in.	2 ft. 6 in.	14 in.	13 in.	3 to 4 tons

Price, including Dynamo and Rheostat, \$350.00.

Price, wound for direct current not over 110 volts, including Rheostat, \$312.50.

# Improved Hill Cinder Crushers

## No. 2

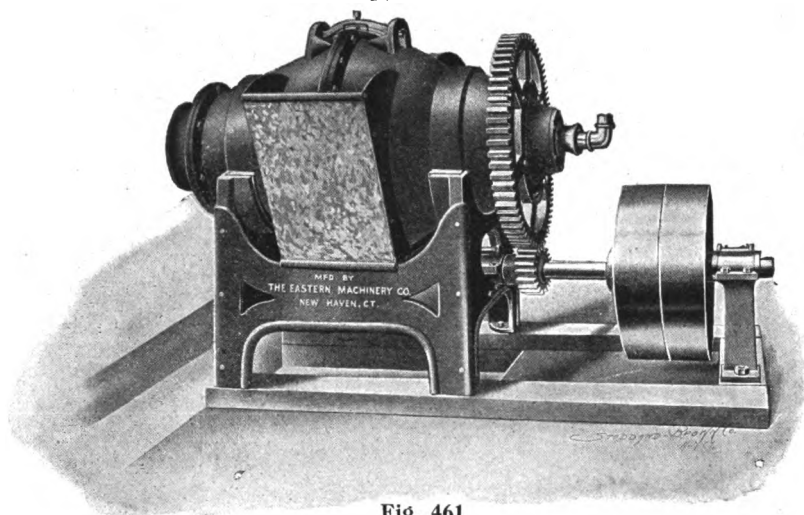


Fig. 461

Arranged for Wet Process

## No. 1

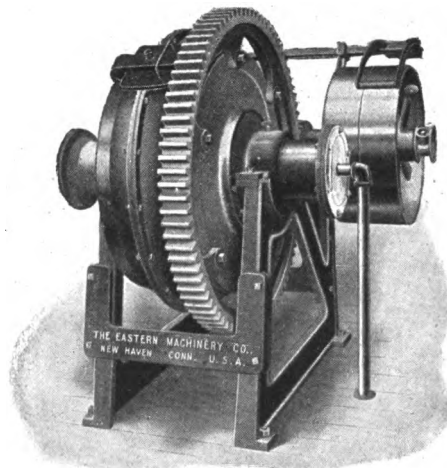


Fig. 462

Arranged for Wet Process

No.	Size of Barrel			Rev's Bbl. per Minute	Pulley				Wt., Lbs.	Price
	Diam., Inches	Length, Inches	Thick., Inches		Diam., Inches	Face	Rev's	H. P.		
2	36	48	2	40 to 60	24	6	180 to 260	5 to 8	3,400	\$480
1	30	10	.....	40 to 60	20	4	240 to 340	1 to 2	1,425	300

### **IMPROVED HILL CINDER CRUSHER**

The Improved Hill Cinder Crusher was primarily designed for pulverizing and cleaning brass foundry cinders, skimmings, and materials of similar nature, by the wet or dry process.

The capacity of the No. 2 machine depends a good deal upon the quality of the material to be separated and a good deal upon the manner of feeding the material and operating the machine. It should, however, extract the metal from ten to twenty barrels of brass foundry skimmings and ashes per ten hours.

The No. 1 machine, being much smaller, is adapted more particularly to small brass foundries, laboratories, or other places having less material to be crushed and separated. The operation is just the same as the larger machine.

#### **WET PROCESS**

For operation by this process a stream of water of considerable force is made to run into the barrel at the gear end. This water flows through the barrel and runs out at the feeding end, carrying with it all the cinders, dirt, and refuse, leaving the heavier metal in the bottom.

The material to be crushed is fed into the feeding end of the barrel, a shovel or two at a time, as may be found advisable. After the cleaned metal is collected in the bottom of the barrel in sufficient quantity, the door or cover on the side of the barrel is taken off and the barrel rotated until all the cleaned metal has dropped out in the space for it under the barrel.

The water should enter the barrel through a pipe at least  $\frac{3}{4}$  inch in diameter inside, with a valve in the pipe to control the flow. It will not do to economize in water, because the amount of work done will be somewhat affected by the amount and flow of the water.

The material being fed into the barrel may be wet or dry. Preferably, it should be wet, so that none of the cinders may be floated out by the water carrying good metal with them before being crushed under the roller.

#### **DRY PROCESS**

This process is preferable to the wet, as a good deal more work can be done in a given time. It does not, however, leave the metal as bright as it is when cleaned by the wet process.

To arrange for this process a galvanized iron pipe about  $7\frac{1}{2}$  inches in diameter should be connected to the gear end of the barrel and conducted to an exhaust fan with suitable receiving tanks prepared for holding the waste material. The pipe should have a slip-joint where it connects with the barrel, so that if necessary a little air may be let in at that point.

It will cost a little more to fit up a machine for operation by this process, but it is generally the better way, because it is the most efficient.

THE MONARCH CINDER MILL

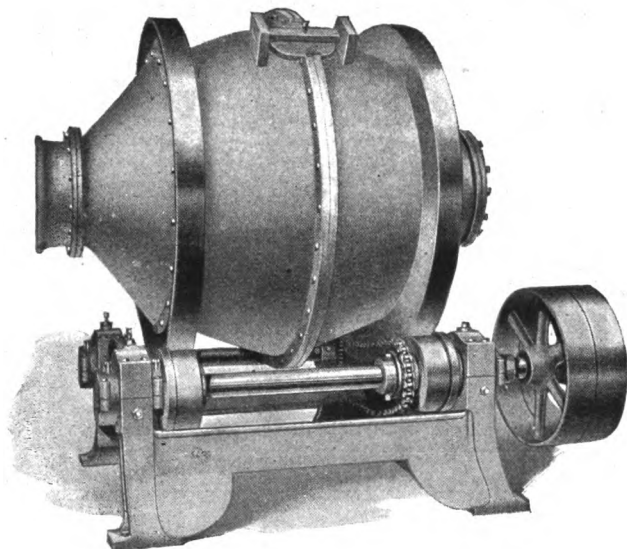


Fig. 463

Monarch Cinder Mills are used for crushing and pulverizing all kinds of ores, etc., for reclaiming of Brass, Copper, Aluminum, and all base metals from foundry ashes, skimmings, and other refuse.

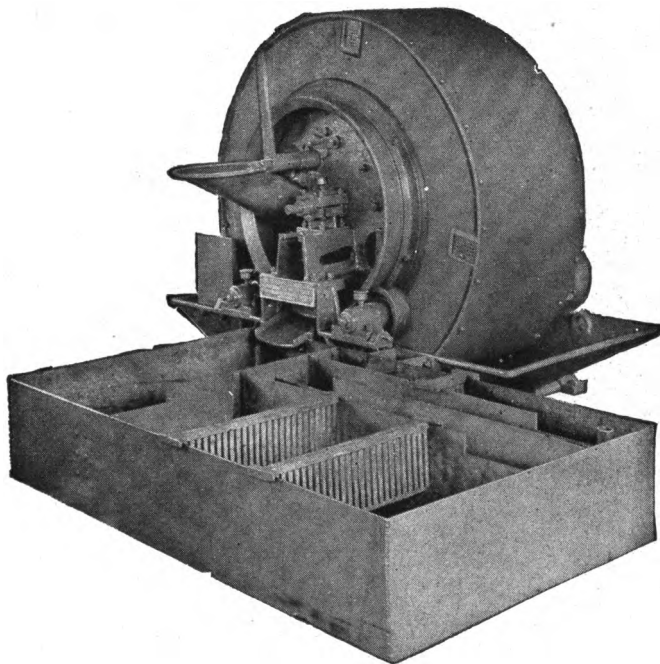
May be operated with either wet or dry process.

These mills are designed and built according to the best method of modern construction. High-grade material is used throughout, and no detail is slighted which can add to efficiency, durability, or convenience of operation.

The Monarch Cinder Mills are made in three capacities, from one to five tons per day, and two styles, i. e., heavy cast iron barrels or patented Hard Steel Linings.

Sizes Nos.	Capacity Per Day	Speed, R. P. M.	H. P.	Prices
1	3 to 4 tons	240	1¼	\$480 00
2	3 to 4 "	160	1¼	600 00
3	6 to 10 "	240	2	1,200 00

## STANDARD CINDER MILL AND PULVERIZER



**Fig. 464**  
**Patented**

### **Arranged for Wet or Dry Process**

The name of Cinder Mill and Pulverizer has been applied to this machine which, in reality, is a Metal Reclaiming Machine.

The "Standard" Crusher is not merely an improvement of an old process. The general principle as applied to this work is fundamentally different from anything used heretofore. The new features of its construction and operation have proven in every installation a decided increase of efficiency, and at the same time have greatly reduced the cost of maintenance.

The only major repair required is the occasional replacement of the **HARD IRON ROLLS**, while in most other methods the barrel had to be replaced at frequent intervals. Rolls do not come in contact with the drum or barrel. After feeding through the mill once, no additional labor is entailed, **NO SIFTING**, **NO WASHING**, **NO SEPARATING**. The job is done. It will separate a stated amount of cinders and metal in one-fourth to one-half the time formerly required, and the operator will be busy all the time.



# STANDARD CINDER MILL AND PULVERIZER

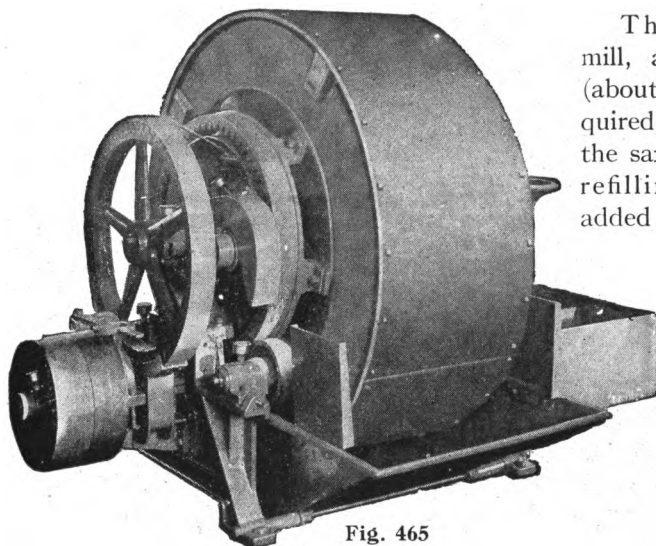


Fig. 465  
Rear View

The "Standard" mill, after being filled (about 200 gallons required), will operate on the same water without refilling, only enough added occasionally to replenish that taken out with the mud, so the same water can be used over and over again. This represents a saving of several thousand gallons of water per year.

When arranging for wet process, fill the water pan and settling tank with water. Raise the charging hopper to horizontal position, locking same with lever and latch. Start the mill and feed cinders, etc., continually into hopper. If cinders flow out of mill NOT crushed it will indicate that you are feeding too fast. Owing to the extreme variation of metal contents in cinders, etc., it is impossible to advise as to the quantity to be fed into mill. Continue feeding until section A of settling tank begins to show metal, which will indicate that the drum contains a full charge of metal, and feeding should be discontinued. The mill should continue to run from one to one and a half hours to finish grinding and thoroughly clean the metal. Discharge the metal by lowering hopper.

No.	Capacity Per Hour Pounds	H. P.	Speed Pulley, R. P. M.	Floor Space Required for Wet Process	Approximate Weight, Pounds
2	Laboratory	1			
3	300	1½	170	7' x 7' 6"	3,800 lbs.
4	600 to 800	2½	170	8' 6" x 8' 6"	5,000 "
5	1,000 to 1,500	3½	170	8' 8" x 9'	6,650 "
6	2,500 to 3,000	5	140	9' 6" x 10' 6"	10,400 "
7	5,000 to 6,000	7½	140	10' x 12'	17,500 "

Prices and further information on application

## Buckeye Reliable Water Mill

Saves Iron and Coke

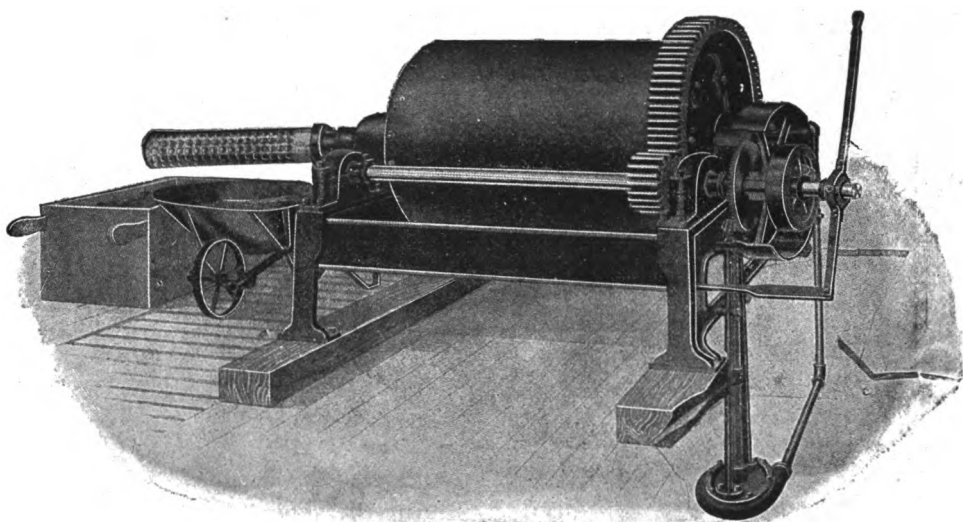


Fig. 466

The above cut illustrates the mill complete, with centrifugal pump and friction clutch pulley. The mill is erected on a tank constructed of either brick or concrete, and divided into three different compartments. The first, directly under the mill, contains the water in which the pump is set; the second compartment is the settling basin, and the third is for the refuse matter.

**OPERATION.**—During the operation of the water mill the cinders are crushed by means of a crusher which revolves within the body of the mill when in operation. The water pumped up through the mill by the centrifugal pump separates the iron from the cinders and coke, the cinders and coke being carried out of the mill through the hollow trunnion. The separating heads prevent the iron from passing through with the refuse matter, therefore the iron remains within the mill, and after being cleaned is discharged through door opening. The screen attached to the trunnion carries the coke over the refuse tank into the box, as illustrated. By the use of tanks and the centrifugal pump, as explained, the water is used over and over again.

**CONSTRUCTION.**—The body of the mill is  $1\frac{1}{4}$  inches thick, consisting of  $\frac{1}{2}$ -inch steel outside shell, lined with  $\frac{3}{4}$ -inch high carbon steel renewable lining. The mill is designed to withstand heavy duty, and is made up first-class in every way.

Price, \$675.00.

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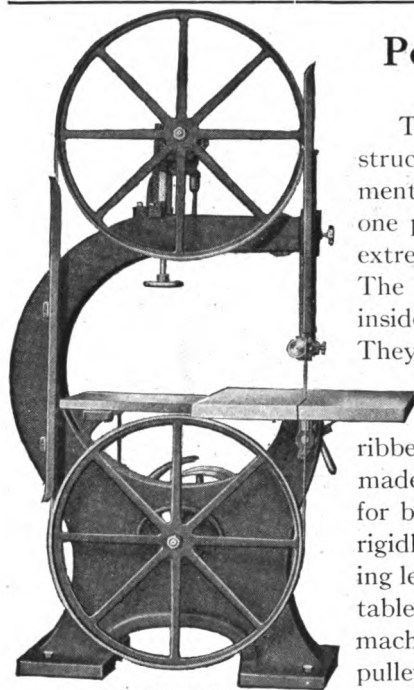


Fig. 467

## Showing Tilting Table

## Power Band Sprue Saws

38, 36, 32, 26-Inch

These machines are of modern construction, and are complete in all adjustments and details. The frames are cast in one piece, cored out hollow, making them extremely rigid and free from vibration. The wheels are made of iron, turned true inside and outside, and carefully balanced. They are covered with endless rubber bands, cemented on. The tables are made of iron, planed true and heavily ribbed on the under side. They are made to tilt to any angle up to 45 degrees for bevel and conical sawing, and are held rigidly at any point by means of a clamping lever. Scale and pointer show when the table has been tilted to desired angle. The machines are provided with tight and loose pulleys and shifting lever. The wheel is fastened to the shaft, and the shaft revolves in a long bearing that is adjustable for

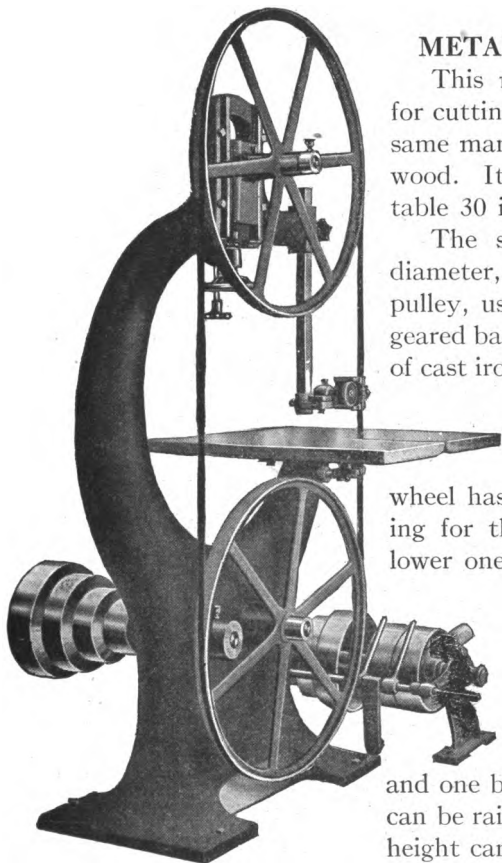
wear. A tension spring is provided to keep the saws always at proper tension. The 36-inch and 38-inch machines are provided with a spring counterbalance for the guide bar. Steel guards can be furnished on these band saws, and are so attached to the machine that they do not interfere with the taking off and putting on of saw blades. The guards are neatly designed, and really add to the attractive appearance of the machines.

## DIMENSIONS

Size of machine	38 in.	36 in.	32 in.	26 in.
Size of band wheels	38x 2 in.	36x 2 in.	32x1¾ in.	26x1½ in.
Size of table	30x36 in.	28x32 in.	24x28 in.	20x24 in.
Size of tight and loose pulleys	16x 4 in.	12x 4 in.	12x3½ in.	10x3 in.
Speed, revolutions per minute	400 to 450	400 to 450	400 to 450	400 to 450
Length of saw blade	20 ft. 4 in.	18 ft. 6 in.	16 ft. 4 in.	13 ft. 9 in.
Floor space over all	44x62 in.	39x57 in.	35x48 in.	30x40 in.
Shipping Weight	1,475 lbs.	1,200 lbs.	950 lbs.	500 lbs.
Price	\$280.50	\$220.00	\$176.00	\$148.50

With each machine is included one non-friction guide above table, one brazing clamp, one pair brazing tongs, one saw blade, set, filed and joined ready for use. These articles need not be mentioned in ordering.

The 38-inch and 36-inch machines are furnished with ¾-inch blade; 32-inch, with ½-inch blade; 26-inch, with ⅜-inch blade. Customer can, however, have choice of any width blade up to 1 inch.



**Fig. 468**

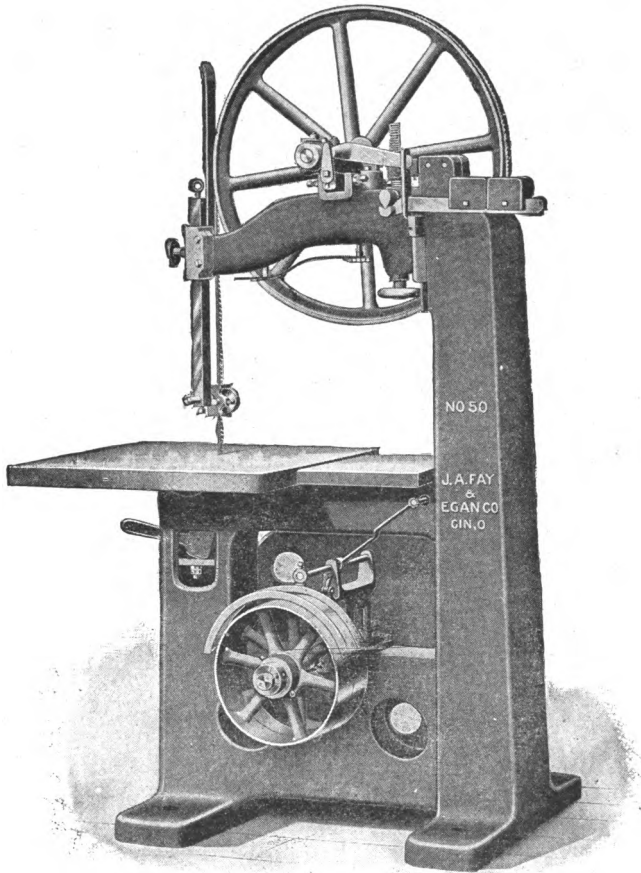
### METAL BAND SAW MACHINE

This machine is designed expressly for cutting metal, and is operated in the same manner as a band saw for cutting wood. It is strongly built, and has iron table 30 inches square.

The saw wheels are 30 inches in diameter, and are driven by a four-cone pulley, using a three-inch belt, and are geared back four to one. They are made of cast iron, without rubber, felt, etc., on the face, which allows the use of oil for lubrication of the saw, if desired. The top wheel has a lateral adjustment, providing for the proper alignment with the lower one, the position of which is stationary. The gears are machine cut, and are placed in the hollow of the frame, which protects them from injury by dust and chips. Two band saw guides are used, one above and one below the table. The guide bar can be raised, so that work ten inches in height can be cut. The distance between the saw and frame is 30 inches, which allows a large space for the convenient handling of work. The countershaft has tight and loose pulleys 8 inches in diameter by 3½-inch face, and should make 240 revolutions per minute. At the low speed this will operate the saw blade at approximately 190 feet per minute, or 1,076 feet at the high speed. The low speed is to be used when cutting manganese bronze, machine steel, etc., and the high speed for brass and other soft metals.

<b>Weight</b> .....	<b>1,000 lbs.</b>
<b>Floor space required</b> .....	<b>48 inches by 42 inches</b>
<b>Height of table</b> .....	<b>36 inches</b>
<b>Extreme height</b> .....	<b>80 inches</b>
<b>Length of saw used</b> .....	<b>15 ft. 8 inches</b>
<b>Price, complete, as shown</b> .....	<b>\$210.00</b>
<b>Price, without countershaft</b> .....	<b>195.00</b>

**"LIGHTNING" 36-INCH SPECIAL BAND SAW**

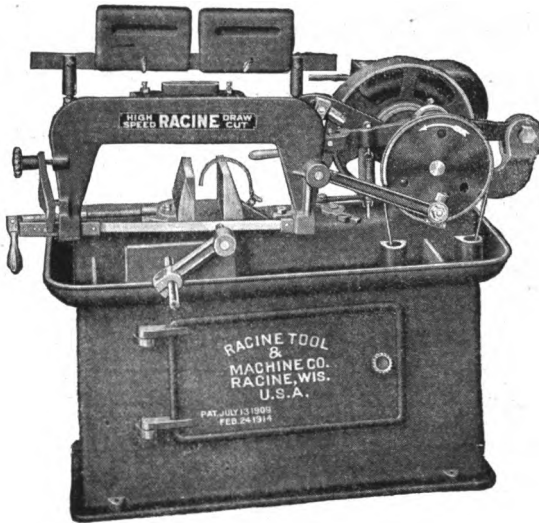


**Fig. 469**

The patented construction of this band saw permits the use of thinner blades, and the up-keep cost is 25 per cent lower than other 36-inch band saws. The frame is a single-cored casting with a broad base, gradually tapering upward. This eliminates vibration and permits machine to be run at greater speed. Table is automatic, 29 inches by 33 inches, of iron, and planed perfectly true. Wheels are 36 inches in diameter, 2-inch face, entirely of iron, with rubber face. Lower wheel is solid; upper wheel can be adjusted laterally and vertically. Will cut up to 6-inch round material. Machine is arranged with geared step-down for slow speed.

Floor Space	H. P.	Length Blade	Space Under Guide	Height Over All	Price
3' 3" x 4' 5"	2	18' 4"	18"	7' 6"	\$700.00

## HIGH SPEED METAL CUTTING MACHINE



**Fig. 470**  
**Eats Steel**

**ECONOMY.**—The material saved by this machine in the cut, as compared with a cold saw, will pay for the machine many times over.

**BLADE HOLDERS.**—The blade holders are made from 1x $\frac{3}{8}$ -inch flat bar, fitted into a milled slot, which holds the blade square with the work, while the blade tightener enables the operator to give the blade sufficient tension without the use of a wrench.

**THE SAW FRAME GUIDE.**—The Saw Frame Guide is made of the best grade of gray iron. This guide also holds itself automatically at any height, which is very convenient when placing stock into the machine.

**COOLING SYSTEM.**—A positive circulating pump applies a cutting compound on the blade.

These machines are equipped with 3-speed transmission, so that they can be operated at 60, 90 or 125 strokes per minute, to suit cutting of various kinds of metals.

Can also be equipped with motor for direct drive.

The original, automatic, positive lift, draw cut, metal cutting machine.

**AUTOMATIC LIFTING DEVICE.**—This is accomplished by using a Patented Return Stroke Automatic Lifting Device, which lifts the blade clear of the work. No dragging back on the non-cutting stroke.

**SIMPLICITY.**—This machine has few moving parts, and is very compact and rigid.

**EFFICIENCY AND**

Capacity, Inches	Blades, Length, Inches	Pulleys, Inches	H. P.	Floor Space, Inches	Speed, R. P. M.	Weight, Pounds
6x 6	10 to 14	2 $\frac{1}{2}$ x12	$\frac{1}{2}$	21 x44	130	405
8x 8	12 to 17	2 $\frac{1}{2}$ x12	$\frac{1}{2}$	29 $\frac{1}{2}$ x47	130	680
12x12	17 to 21	3 x16	1	21 x62	120	750
12x15	17 to 24	3 x16	1	31 x62	120	915

Prices on request.

## Combination Band Saw Filing, Setting and Jointing Machine

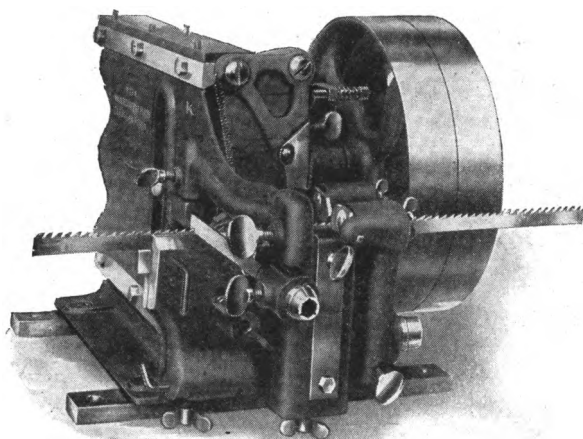


Fig. 471

### Model K

Woodworking Band Saws  $\frac{1}{8}$ " to 2" wide, 2 to 15 teeth.

### Model D

Same as K, without setting attachment.

### Model K-2

Metal Cutting Band Saws  $\frac{1}{8}$ " to 2" wide. Up to 26 teeth.

### Model D-2

Same as K-2, without setting attachment.

In one operation band saws are filed, set, and jointed on Models K or K-2. Saws are resharpened at a speed of 65 teeth a minute.

All wearing parts are steel with filing arm working between heavy adjustable steel slides and not depending on babbitt. Can be operated by hand or belt or by direct-connected motor from lamp socket.

Models D and D-2 Band Saw Filers are the same as Models K and K-2, except that they have no setting attachment.

When ordering state the width and number of teeth to the inch in different saws, so that correct standard files can be shipped.

Prices: Model K, \$150.00; K-2, \$156.25; D, \$125.00; D-2, \$131.25.

## HACK SAW FRAME

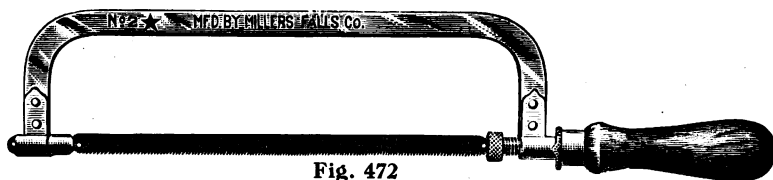


Fig. 472

Adjustable, with one blade 12 inches long. Price, \$2.50

473

## HACK SAW BLADES

We can furnish any size and style of blade. Give length, width, and number of teeth to inch.

Prices on application

## AUTOMATIC METAL CUTTING BAND SAW GRINDER

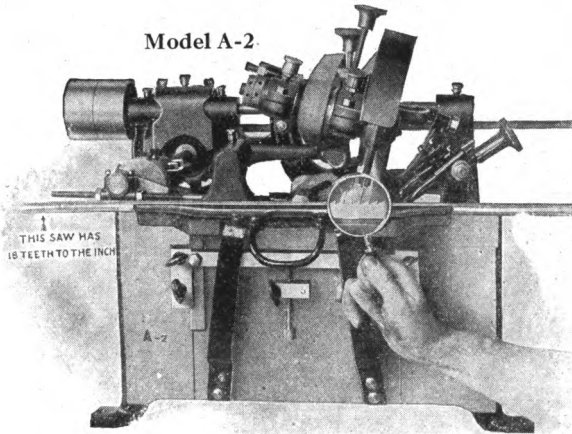


Fig. 474

For Metal Cutting Band Saws (Hard or Medium Tempered),  $\frac{1}{8}$ " to 2" wide. Teeth up to 26 to the inch.

Model A-2 automatically resharpsens all hard-tempered or medium - tempered metal cutting band saws, such as are used for cutting steel, brass, bronze, fiber, etc. Heretofore this

class of saws has been thrown away when once dull; it is now possible to resharpen them and use them over from eight to ten times. It is furnished with a positive feed movement, so that where small teeth are torn out the saw still continues to be fed. So accurate is this machine that as little as one-half of  $\frac{1}{1000}$  of an inch can be removed from either the face or the back of the tooth. When ordering, send sketch of template of teeth, showing space and style, in order that proper grinding wheel can be shipped.

**To convince you of the work of this machine and what a resharpened metal band saw accomplishes, if you will mail to us by parcel post two of your dull, hard tempered, metal cutting band saws, stamped with your name or other mark for your identification, they will be resharpened and returned to you free of charge.**

**Price, \$140.00**

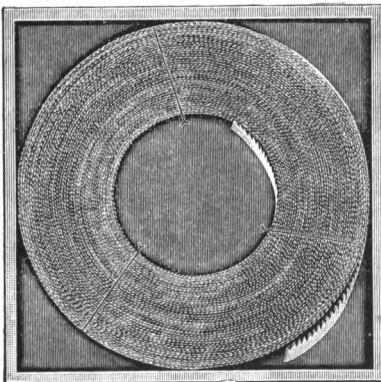


Fig. 475

### BAND SAW BLADES

Only the very finest grade of steel obtainable is used in our Band Saw Blades in various tempers, and we will fully guarantee these saws to give satisfaction if they are given a fair trial by skilled operators.

Advise length, width, and number of teeth to the inch; also kind of material to be cut.

Also furnished in coils.





Fig. 476

## FOOT POWER SPRUE CUTTER

This machine is designed to cut castings from gates. It is heavy, has large wearing surfaces, and is guaranteed in every particular.

This machine will cut a piece equivalent to  $\frac{1}{2}$  inch square common yellow brass. Cutters are made of best tool steel  $1\frac{1}{2}$  inch.

Depth of throat from cutting edge.....	10½ in.
Space up and down back of cutter.....	12 in.
Height over all.....	5 ft.
Weight.....	450 lbs.
Price.....	\$150.00

## POWER SPRUE CUTTER

### Model 8

This machine is designed to cut castings from gates. It is very heavy, has large wearing surfaces; cutters will remain in line and make clean, close cuts. It is fitted with a very simple clutch, the wearing parts of which are made of tool steel. The crank shaft is made of 40-point carbon steel, and connecting link of crucible steel, and hardened. This machine has a continuous trip-pin attached, and provided with large and long-wearing friction shoes, preventing the shaft from making more than one revolution. The machine will cut a piece equivalent to  $\frac{3}{4}$  inch square common yellow brass, and is guaranteed in every particular. Cutters are made of best tool steel,  $1\frac{1}{2} \times \frac{5}{8}$  inches.

The dimensions are as follows:

Depth of throat from cutting edge.....	10 in.
Space up and down back of cutters.....	12½ in.
Height over all.....	5 ft. 3 in.
Weight.....	1,050 lbs.
Driving wheel 20 inches in diameter, 4 inch face, and should run 100 revolutions per minute.	
H. P. required.....	3
Price.....	\$300.00

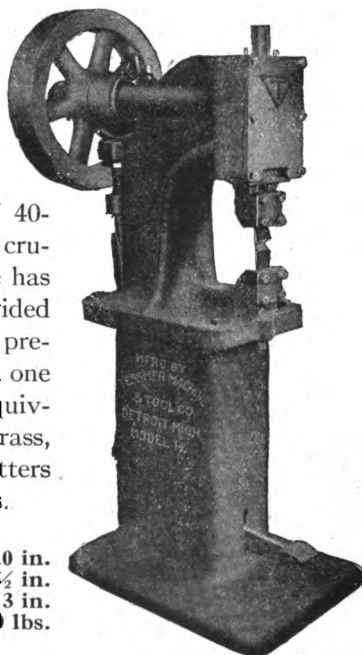


Fig. 477  
Model 8

EXTRA HEAVY POWER SPRUE CUTTER

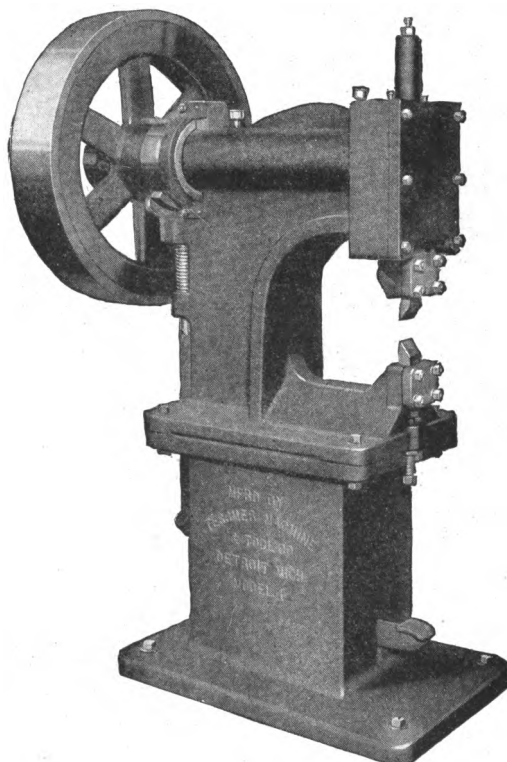


Fig. 478

Model 9

Model 9 Sprue Cutter is the same in construction as Model 8, except that it is built heavier.

This machine will cut a piece equivalent to  $1\frac{1}{2}$  inches square common yellow brass.

Cutters are made of tool steel  $1'' \times 2''$ ,  $7\frac{1}{2}''$  long.

Depth of throat from cutting edge..... 13 in.

Space up and down back of cutters.....  $15\frac{1}{2}$  in.

Height over all..... 6 ft.

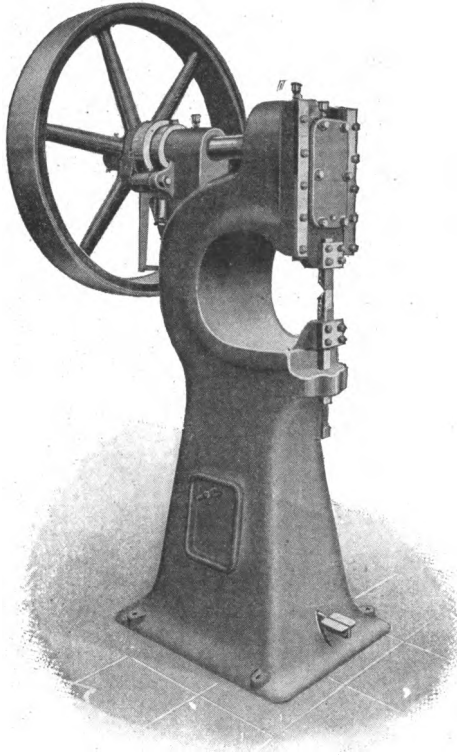
Shipping weight..... 2,700 lbs.

Driving wheel 32 in. diameter, 6 in. face, and should run  
80 revolutions per minute.

H. P. required..... 5

Price..... \$550.00

**POWER SPRUE CUTTER**



**Fig. 479**  
**Model 10**

This Sprue Cutter is the most powerful brass foundry sprue cutter on the market, and is designed for the heaviest class of work. The machine makes good clean cuts, often obviating the necessity of grinding the castings after being cut off.

The operator of this sprue cutter has both hands free to guide the castings, as the machine operates in response to a slight pressure on the foot-treadle, stopping automatically at the highest point of the stroke.

Cutting capacity: 1 inch by 1½ inch yellow brass; 1 inch by 1 inch manganese bronze.

Throat depth, 15 inches; height between jaws, 8 inches.

Maximum horsepower, 4; shipping weight, 2,400 pounds.

Flywheel, 42 inches by 6 inches; speed, 80 R. P. M.

**Price, \$685.00**

**Page 200**

## BRASS FOUNDERS' POWER SPRUE CUTTERS

### Models 11 and 12

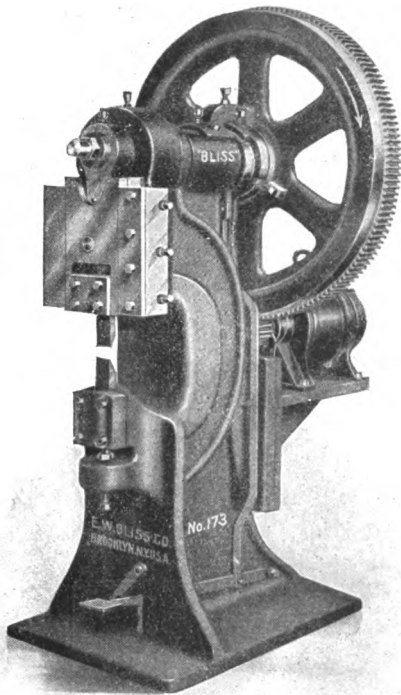


Fig. 480

This illustration shows the general style and appearance of the Power Sprue Cutters Models 11 and 12. These machines are especially designed to meet the requirements of brass founders and manufacturers of other soft-metal castings. The operator has both hands free to guide the castings, as the cutters operate in response to a slight pressure on the foot-treadle, stopping automatically at the highest point of the stroke. The frame is so designed as to offer no obstruction, so that long castings, whether set square or at an angle to the main gate, can be cut off as readily as those of smaller dimensions.

The cutters are cut from a bar of tool steel of the requisite section, the cutting part being ground to a bevel edge. The adjustments permit of so setting the cutters that they will just cut off the gate without touching each other, thus effectually preserving the keenness of the edges.

On account of distance from driving power it is sometimes found convenient to run them by an electric motor attached directly to the machine.

Model	11	12
Weight complete, about	lbs. 525	1,600
Distance back from face of cutter	ins. 4	6
Width between gibs	ins. $3\frac{3}{4}$	$6\frac{1}{2}$
Standard stroke of slide	ins. 1	$1\frac{1}{4}$
Length of cutters	ins. $4\frac{5}{8}$	$8\frac{1}{2}$
Width and thickness of cutters	ins. $1\frac{1}{4} \times \frac{1}{2}$	$1\frac{3}{4} \times \frac{3}{4}$
Will cut off round brass gates	ins. $\frac{3}{8}$	$\frac{7}{8}$
Will cut off flat brass gates	ins. $\frac{1}{4} \times \frac{3}{4}$	$\frac{3}{4} \times 1\frac{1}{2}$
Diameter and face of flywheel	ins. $18 \times 2\frac{1}{2}$	$30 \times 4\frac{1}{4}$
Speed of flywheel	R. P. M. 150	115
Height from floor to center of shaft	ins. 48	55
Floor space of base, F. & B.xR. & L.	ins. $22 \times 18$	$28 \times 24$
Floor space over all, F. & B.xR. & L.	ins. $22 \times 18$	$30 \times 30$
H. P. required	1	2
Price	\$275.00	\$475.00

## The Diamond Iron Core Box

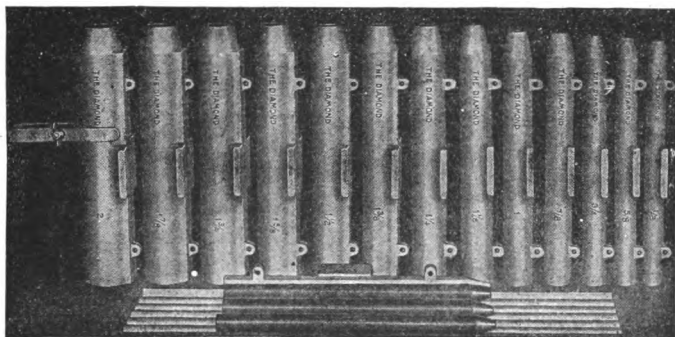


Fig. 481

All sizes are 12 inches long

DIAMETER IN INCHES. PRICE EACH													
$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	
\$3.50	\$3.75	\$4.00	\$4.25	\$4.50	\$4.75	\$5.00	\$5.25	\$5.50	\$5.75	\$6.00	\$6.25	\$6.50	
Price, complete set, \$55.00													

A new design of core boxes to make perfectly round cores, and without fins. The clamp is a steel spring clamp, as shown in cut, and can be adjusted for any size box. After the clamp is adjusted to size, it is forced over the box, saving time and labor. This set of boxes is 12 inches long, with standard cone prints ranging in size from  $\frac{1}{2}$  inch to 2 inches, although we can make them straight. Can be used on any jolt ramming machine, also on the bench by hand.

## DIAMOND WOOD CORE BOXES

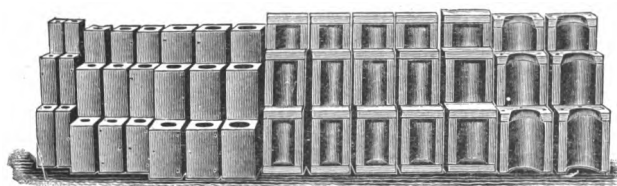


Fig. 482

We can furnish you with a complete set of boxes, from  $\frac{7}{8}$  to  $4\frac{1}{8}$  inches, advancing by  $\frac{1}{4}$  inches, fourteen sizes and three

lengths to each size, viz.: of 6, 12, and 16 inches long, making in all 42 boxes, straight ends. Price per set, \$50.00. With cone ends, extra, \$10.00

Hardwood boxes doweled with brass pins. Whole boxes up to  $2\frac{5}{8}$ ; balance half boxes. Perfectly round; well finished. Varnished inside and out.

483

## PERFECT CORE BOXES

Our Perfect Core Boxes are made of best quality of lumber, for cores  $\frac{1}{2}$  inch to  $5\frac{1}{2}$  inches in diameter, and from 3 inches to 24 inches long.

Prices on application

## STYLE "A" HAMMER CORE MACHINE

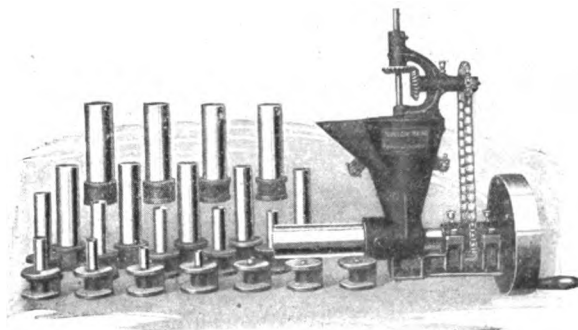


Fig. 484

### CAPACITY

Round cores,  $\frac{3}{8}$  to 3 inches.

Square cores,  $\frac{3}{8}$  to 2 inches.

Oval cores up to 3 inches.

Octagonal cores up to 3 inches.

Slab cores up to 3 inches.

Irregular cores not over 3 inches.

This machine is very substantially constructed, and is equipped with exclusive features used in hammer core machine construction, making it more efficient than any other stock core-making machine on the market. The hopper of the Style "A" machine is equipped with an extended lip, giving it a large capacity for sand. Heavy babbitted bearings are used on the main shaft, and two bearings are used on the upright or FORCE FEED. The latter feature is patented, and is responsible for the high operating efficiency and the production of uniform cores on this equipment. The following are the standard sizes of the Style "A" machine.

Style "A" Hammer Core Machine No. 1, equipped to make 16 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  inches.

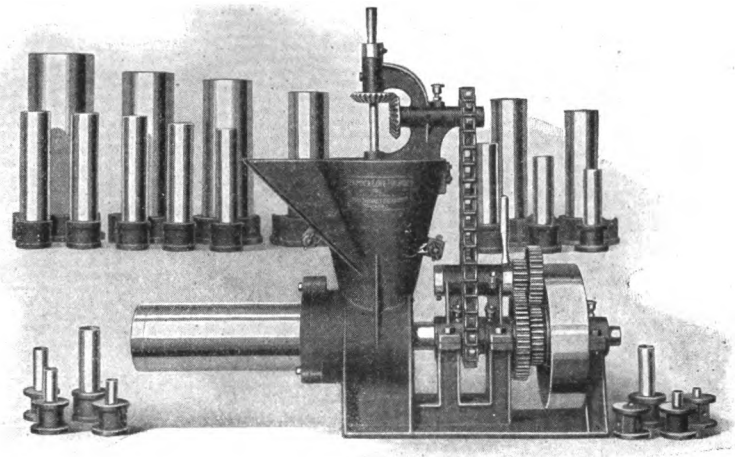
Style "A" Hammer Core Machine No. 2, equipped to make 10 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$ , and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3 inches.

Style "A" Hammer Core Machine No. 3, equipped to make 22 sizes round cores  $\frac{3}{8}$  to  $3 \times \frac{1}{8}$  inches.

Intermediate sizes in  $\frac{1}{8}$ ,  $\frac{1}{16}$ , or  $\frac{1}{32}$  inch can be furnished for any style of Hammer Core Machine.

Prices on application

**STYLE "B" HAMMER CORE MACHINE**



**Fig. 485**

**CAPACITY**

**Round cores,  $\frac{3}{8}$  to 5 inches.  
Square cores,  $\frac{3}{8}$  to 3 inches.  
Oval cores up to 5 inches.**

**Octagonal cores up to 5 inches.  
Slab cores up to 5 inches.  
Irregular cores not over 5 inches.**

The Style "B" Machine is equipped with three bearings on the main shaft, and is power operated only. It is of the same general construction as the Style "A," being only larger in size and heavier. The Style "B" machine is equipped with back gears, which are put in mesh for making cores over 3 inches in diameter. The following are the standard sizes of this machine:

**Style "B" Hammer Core Machine No. 1, equipped to make 16 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  inches.**

**Style "B" Hammer Core Machine No. 2, equipped to make 19 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$  and 3 inches.**

**Style "B" Hammer Core Machine No. 3, equipped to make 22 sizes round cores  $\frac{3}{8}$  to  $3 \times \frac{1}{8}$  inches.**

**Style "B" Hammer Core Machine No. 4, equipped to make 21 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ , and 4 inches.**

**Style "B" Hammer Core Machine No. 5, equipped to make 23 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5 inches.**

**Prices on application.**

STYLE "C" HAMMER CORE MACHINE

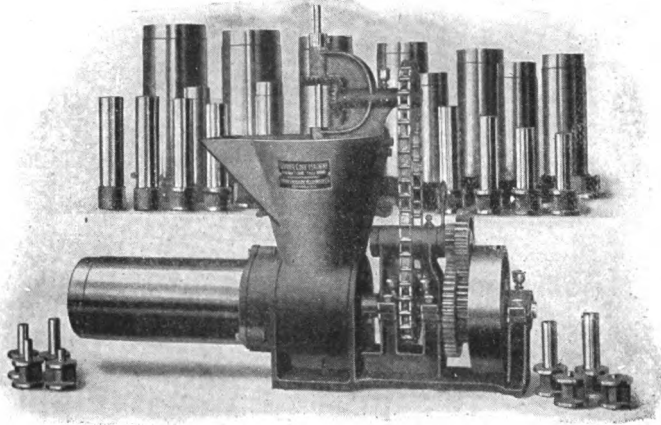


Fig. 486

CAPACITY

Round cores,  $\frac{3}{8}$  to 7 inches.  
Square cores,  $\frac{3}{8}$  to 5 inches.  
Oval cores up to 7 inches.

Octagonal cores up to 7 inches.  
Slab cores up to 7 inches.  
Irregular cores not over 7 inches

The Style "C" Machine is of the same general construction as the Style "B," being only larger and heavier. It is very powerfully built to withstand the wear and tear of producing the larger size cores. This machine is in use by many of the large foundries throughout the United States and foreign countries. The FORCE FEED is very essential in this large size machine, as it is necessary to force the sand onto the feed-screw or conveyor in order to produce the cores rapidly. The following shows the number of dies included with the standard sizes of this machine:

Style "C" Hammer Core Machine No. 1, equipped to make 16 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  inches.

Style "C" Hammer Core Machine No. 2, equipped to make 19 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , and 3 inches.

Style "C" Hammer Core Machine No. 3, equipped to make 22 sizes round cores  $\frac{3}{8}$  to  $3 \times \frac{1}{8}$  inches.

Style "C" Hammer Core Machine No. 4, equipped to make 21 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$ ,  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , and 3,  $3\frac{1}{2}$ , 4 inches.

Style "C" Hammer Core Machine No. 5, equipped to make 23 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$ ,  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5 inches.

Style "C" Hammer Core Machine No. 6, equipped to make 25 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5,  $5\frac{1}{2}$ , 6 inches.

Style "C" Hammer Core Machine No. 7, equipped to make 27 sizes round cores  $\frac{3}{8}$  to  $2\frac{1}{4} \times \frac{1}{8}$  and  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5,  $5\frac{1}{2}$ , 6,  $6\frac{1}{2}$ , 7 inches.

Prices on application.



# No. 1 WADSWORTH IMPROVED CORE MAKING MACHINE

## Hand Power

Capacity,  $\frac{3}{8}$  to 3 inches; 19 sizes

This machine is equipped to make round cores by hand from  $\frac{3}{8}$  in. to  $2\frac{1}{4}$  in., advancing by eighths 16 sizes, and from  $2\frac{1}{2}$  to 3 in., advancing by fourths 3 sizes. See sand mixtures, page 205.

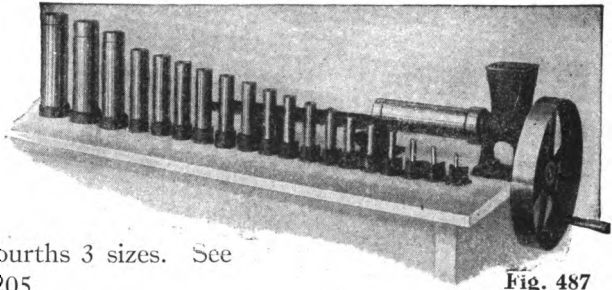


Fig. 487

It is complete with dies, screws, core trays, and supporting plates.

Made in combination of sizes as listed below:

$\frac{3}{8}$ -inch to $1\frac{1}{2}$ -inch, inclusive.....	10 sizes
$\frac{3}{8}$ -inch to $2\frac{1}{4}$ -inch, inclusive.....	16 sizes
$\frac{3}{8}$ -inch to 3 -inch, inclusive.....	19 sizes

Intermediate sizes of round, square, hexagon, half-round, and special shape dies for special shape cores can be furnished. Prices will be quoted upon application, accompanied by cut of cores wanted.

## PART LIST OF No. 1 CORE MACHINE

- |   |  |
|---|--|
| 1—Body.                                 | 14—Gear Shields.                                   |
| 2—Bottom Plate.                         | 15—Screw and Wing Nut for No. 20                   |
| 3—Pulley and Pinion Stud.               | Core Plate Rests.                                  |
| 4—Pulley and Hand Wheel.                | 16—Cotter Pin for No. 3.                           |
| 5—Gear.                                 | 17—Washer for No. 3.                               |
| 6—Driving Pinion.                       | 18—No. 1 Core Tray for taking all                  |
| 7—Yoke.                                 | cores from $\frac{3}{8}$ to $1\frac{1}{2}$ inches, |
| 8—Die Clamp Nut.                        | inclusive, 6 corrugations.                         |
| 10—Wood Handle.                         | 19—No. 2 Core Trays, taking cores $1\frac{1}{4}$   |
| 11—Wood Handle Rivet.                   | to $2\frac{1}{4}$ inches, 3 corrugations.          |
| 12—Fillister Head Screw for No. 7 Yoke. | 20—Core Tray Rests.                                |

When ordering, please order by number. Screws, Dies and Core Trays by size.

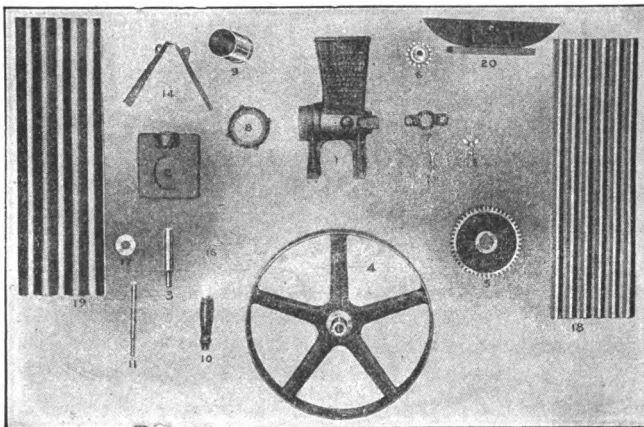


Fig. 488

Prices  
on  
applica-  
tion

**No. 2 WADSWORTH IMPROVED CORE MAKING MACHINE**  
**Hand Power      Belt Power      Capacity,  $\frac{3}{8}$  to 7 inches; 27 sizes.**

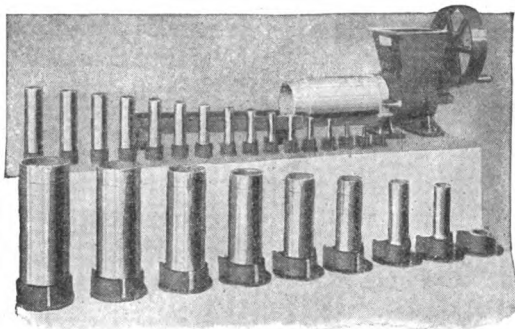


Fig. 489

From  $\frac{3}{8}$ " to  $2\frac{1}{4}$ ", advancing by eighths 16 sizes.  
 $2\frac{1}{2}$ " to 3", advancing by fourths 3 sizes, and  $3\frac{1}{2}$ " to 7", advancing by halves 8 sizes.

This machine is equipped to make round cores. It is fitted with a combination pulley, by which it can be operated by power for all sizes up to 7",

and by hand power for making cores up to and including  $2\frac{1}{4}$ " diameter. Is complete with dies, screws, core trays, and supporting plates.

Made in combination of sizes as listed below:

$\frac{3}{8}$ " to $1\frac{1}{2}$ " inclusive.....	10 sizes	$\frac{3}{8}$ " to 6" inclusive.....	25 sizes
$\frac{3}{8}$ " to $2\frac{1}{4}$ " ".....	16 sizes	$\frac{3}{8}$ " to 7" ".....	27 sizes
$\frac{3}{8}$ " to 3 " ".....	19 sizes	$2\frac{1}{2}$ " to 6" ".....	9 sizes
$\frac{3}{8}$ " to 4 " ".....	21 sizes	$2\frac{1}{2}$ " to 7" ".....	11 sizes

Prices on application

**REPAIR PARTS FOR No. 2 WADSWORTH IMPROVED CORE MACHINE**

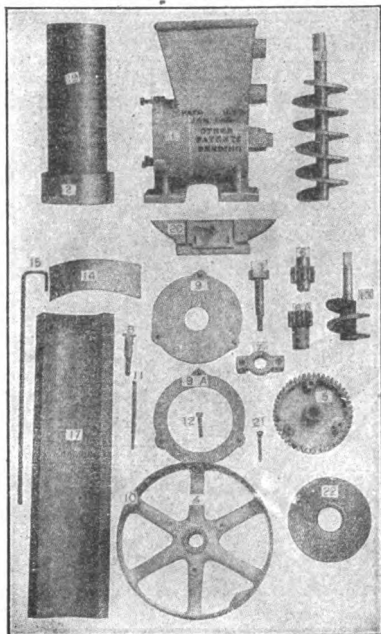


Fig. 490

No.

- 1—Body.
- 2—Die Bushing.
- 3—Pulley and Pinion Stud.
- 4—Pulley and Hand Wheel.
- 5—Gear.
- 6—Driving Pinion.
- 6A—Pinion.
- 7—Driving Pinion Yoke.
- 8—Gear Stud.
- 9—Small Clamp Plate.
- 9—A Large Clamp Plate.
- 10—Wood Handle.
- 11—Wood Handle Rivet.
- 12—Filister Head Screw or Yoke.
- 13—Reduction Screw.
- 14—Gear Shield.
- 15—Vent Wires.
- 16—Stud Wrench.
- 17—Core Tray.
- 18—Conveyor Screw.
- 19—Steel Die.
- 20—Core Tray Rest.
- 21—Pulley Cap Screw.
- 22—Reduction Bushing.

When ordering, please order by number. Screws, Dies and Core Trays by size. Prices quoted on application.

### No. 3 WADSWORTH IMPROVED CORE MAKING MACHINE

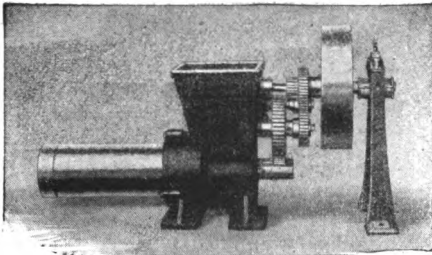


Fig. 491

From  $\frac{3}{8}$ " to  $2\frac{1}{4}$ ", advancing by eighths, 16 sizes.  
 "  $2\frac{1}{2}$ " to 3 " " " fourths, 3 sizes.  
 "  $3\frac{1}{2}$ " to 7 " " " halves, 8 sizes.

**Belt Power**

Capacity,  $\frac{3}{8}$  to 7 inches. 27 sizes.

**"Quick Speed" Changing Power Core Making Machine, with Countershaft.** Capacity,  $\frac{3}{8}$  inch to 7 inches, 27 sizes. This machine is operated by power only, and is fitted with the "Quick-Speed" Changing Device.

Machine is complete with dies, screws, core trays, and supporting plates. Is sold in combination of sizes. See Sand Mixture, page 210.

**Prices on application**

Name and number of the detail parts for the No. 3 Wadsworth Improved Core Machine as shown below.

- |                             |   |
|-----------------------------|---|
| No.                         | No.   |
| 1—Body.                     | 30—Special Intermediate Gear Stud.                |
| 6—Driving Pinion.           | 31—Special Gear Stud.                             |
| 7—Yoke.                     | 32—Washer for No. 27.                             |
| 9—Small Clamp Plate.        | 33—Washer for No. 29.                             |
| 9A—Large Clamp Plate.       | 34—Washer for No. 30.                             |
| 20—Core Tray Rest.          | 35—Pulley.  |
| 22—Reduction Bushing.       | 36—Gear Shield.                                   |
| 23—Gear.                    | 37—Clamp Screws for $6\frac{1}{2}$ " and 7" dies. |
| 24—Gear.                    | 38—Hanger.  |
| 25—Gear.                    | 39—Hanger Box.                                    |
| 26—Gear.                    | 40—Cotter Pin for No. 27.                         |
| 27—Pinion.                  | 41—Cotter Pin for No. 29.                         |
| 28—Special Pinion Bearing.  | 42—Cotter Pin for No. 30.                         |
| 29—Special Stud for No. 28. |   |

When ordering, please order by number. Screws, Dies and Core Trays by size.

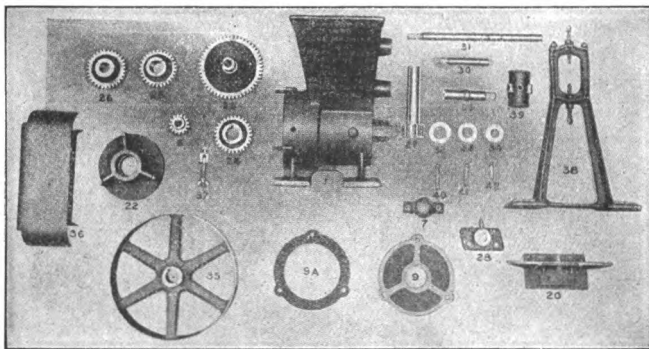


Fig. 492

**Prices on application**

No. 2 WADSWORTH CORE MAKING MACHINE ON IRON  
TABLE AND LEGS

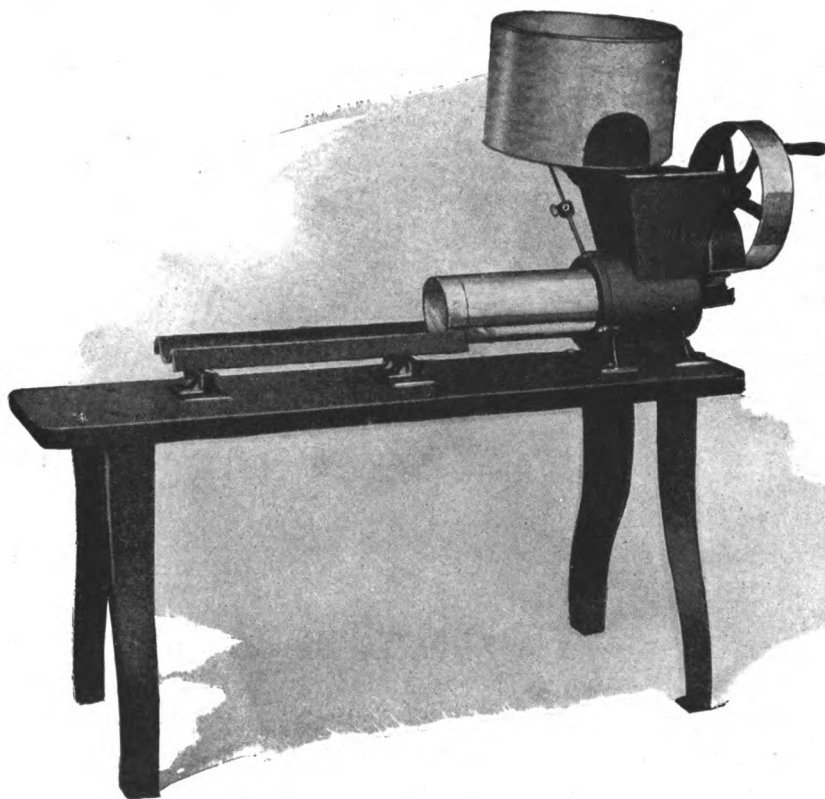


Fig. 493

From	$\frac{3}{8}$ "	to	3",	inclusive,	19	sizes.
"	$\frac{3}{8}$ "	"	4"	"	21	"
"	$\frac{3}{8}$ "	"	6"	"	25	"
"	$\frac{3}{8}$ "	"	7"	"	27	"
"	$2\frac{1}{2}$ "	"	6"	"	9	"
"	$2\frac{1}{2}$ "	"	7"	"	11	"

Intermediate sizes of round, square, hexagon, half-round, and special shape dies for special shape cores can be furnished. Prices will be quoted upon application, accompanied by cut of cores wanted.

We furnish repairs for machines manufactured under patents. In ordering parts for repairs, please order by number; dies and tubes, by size marked on them.

Countershaft with fixtures, tight and loose pulleys and driving extra. Write for prices and cuts of stock and standard core machines.

Prices on application

## Sand Mixtures Suitable for Core Machines

The following mixtures given are in use on the Wadsworth Core Making Machine in a number of foundries, and while variations have to be made from time to time to suit the conditions, these are the most generally used:

### Formula No. 1. Mixtures for Gray Iron Cores $\frac{3}{8}$ to $2\frac{1}{2}$ Inches

12 quarts silica, lake, or clear, sharp sand, free from loam or clay.  
2 quarts flour.  $\frac{1}{2}$  pint boiled linseed oil.

### Formula No. 2. For Cores $2\frac{1}{4}$ to 7 Inches

15 quarts sharp sand. 3 pints flour.  
3 quarts Zanesville or a loam sand.  $\frac{1}{2}$  pint linseed oil.

### Formula No. 3. Mixtures for Brass and Aluminum Castings

4 quarts silica or good, sharp sand. 2 quarts brass molding sand.  
 $\frac{1}{4}$  pint boiled linseed oil.

The more water the mixture will carry, the harder and stronger the core will be when baked.

### Formula No. 4. No. 1 Core Mixture for Steel Castings $\frac{1}{2}$ " to $2\frac{1}{2}$ "

This Mixture is used without grinding.

6 quarts silica sand.  $\frac{1}{2}$  pint boiled linseed oil.  
1 quart flour.

### Formula No. 5. Cores $2\frac{1}{2}$ Inches and Above

18 quarts silica sand.  $1\frac{1}{4}$  quarts flour.  
3 quarts fire clay.  $\frac{1}{2}$  pint boiled linseed oil.

These steel mixtures must be thoroughly mixed by hand, when a more suitable way is not available. The fire clay can be increased or decreased, according to the hardness of the core with the sand being used.

### Formula No. 6. No. 2 Mixture for Steel Castings $\frac{1}{2}$ to $2\frac{1}{4}$ Inches.

Which is ground all together thoroughly in a mill.

6 quarts silica sand.  $\frac{1}{4}$  pint boiled linseed oil.  
 $1\frac{1}{2}$  pints flour.

### Formula No. 7. Cores $2\frac{1}{2}$ Inches and Above

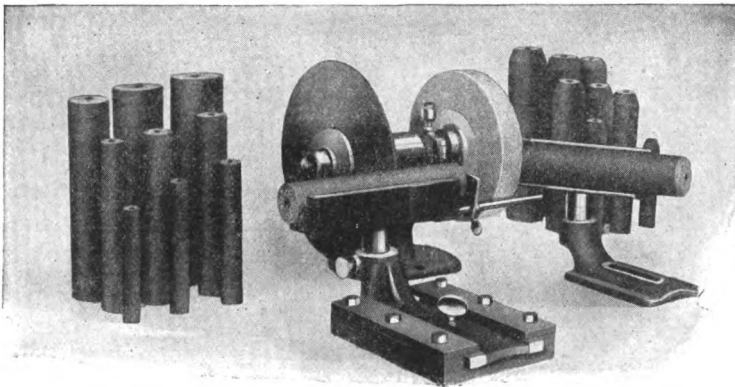
6 quarts silica sand. 3 pints flour.  
 $\frac{1}{4}$  pint boiled linseed oil.

## The Wadsworth No. 1 Cutting off and Coning Machine

As shown below, is built to cut off and cone cores from  $\frac{3}{8}$  to  $2\frac{1}{4}$  inches by power only, and must be mounted on a core bench or standard of its own. The cutting-off wheel is fitted with a rest and gauge for the core, so after the gauge is set to the length desired, all that is necessary is to cut the cores off, and this is done at about the same speed as a saw cutting off a piece of wood with band saw.

The coning wheel is fitted with an adjustable rest, so that it may be set to any angle desired, giving the taper of print wanted.

**Price, complete, \$50.00**



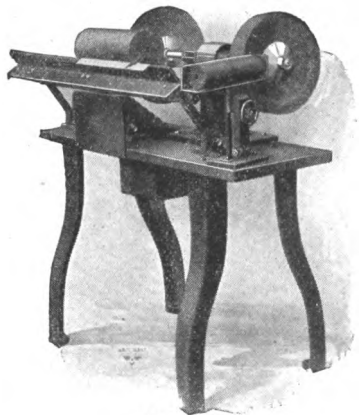
**Fig. 494**

## THE WADSWORTH No. 2 CUTTING OFF AND CONING MACHINE

As shown opposite, is built to cut off and cone cores from  $\frac{3}{8}$  to 7 inches by power only, mounted on an iron base with legs. The cutting-off wheel is equipped with a rest and graduated steel scale, so that the gauge may be readily adjusted and the cores cut to the length desired.

The coning wheel is equipped with an adjustable rest, so that it may be set to any angle desired, giving the taper of print wanted. We furnish with each machine a gauge giving the standard taper for the Wadsworth Core Print.

**Price, complete, \$125.00**



**Fig. 495**

## Core Sawing and Coning Machine

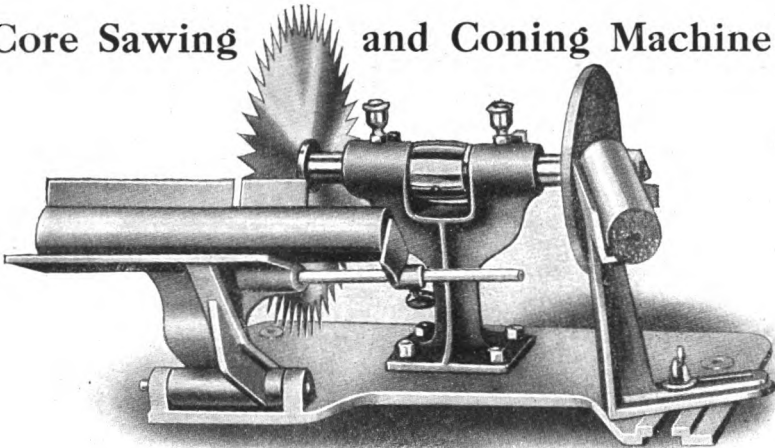
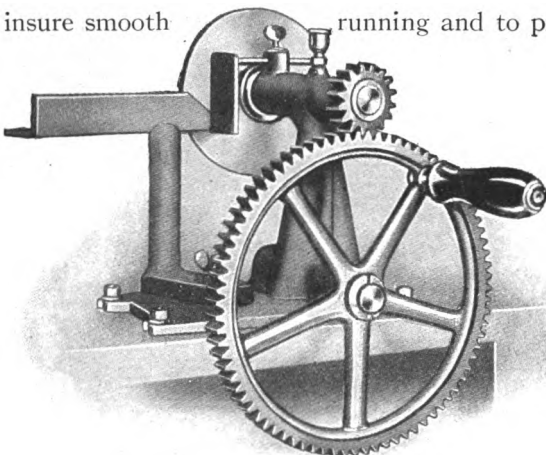


Fig. 496

### We Guarantee this Machine to Saw Cores Evenly

With this machine you can cut off cores to the desired length as smooth and even as required, by placing the core in the Rocking Rest provided alongside the saw. The adjustment stop enables you to cut the cores any length desired, and we believe that this is the only core sawing machine ever put on the market that is guaranteed to do the work right in every way. It also embodies a Coning Wheel, with adjustable feature to permit of coning the cores to any proportion wanted.

We positively guarantee this Sawing and Coning Machine to do satisfactory work on cores up to 3 inches in diameter. Only the best materials are used in the construction and the bearings are babbitted to insure smooth running and to prevent wear.



Hand Power Fig. 497

### HAND POWER CONING MACHINE

The Coning Wheel on this machine is the same as used on the regular coning machine, and will permit of any length of taper on your cores.

#### PRICES

Belt Power.....\$25.00  
Hand Power..... 15.00

## Core Trays

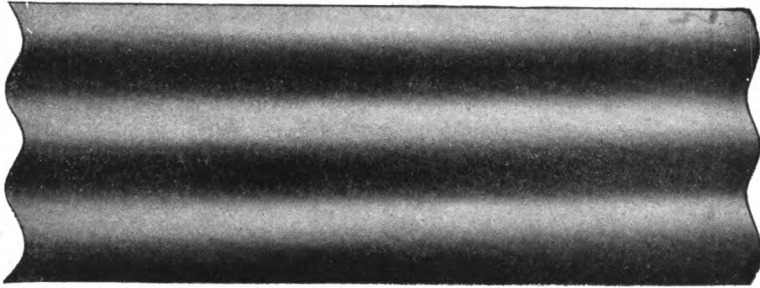


Fig. 498

**Tray "A."**—Core Tray made of No. 20 smooth steel, corrugated; size, 6 inches by 20 inches, for cores up to 1 inch diameter, 5 corrugations.

**Tray "B."**—Illustrated above. Core Tray made of No. 20 smooth steel, corrugated; size, 7 inches by 20 inches, for cores 1 inch to  $2\frac{1}{4}$  inches in diameter, 3 corrugations.

Price	Each
A.....	\$ .50
B.....	.50

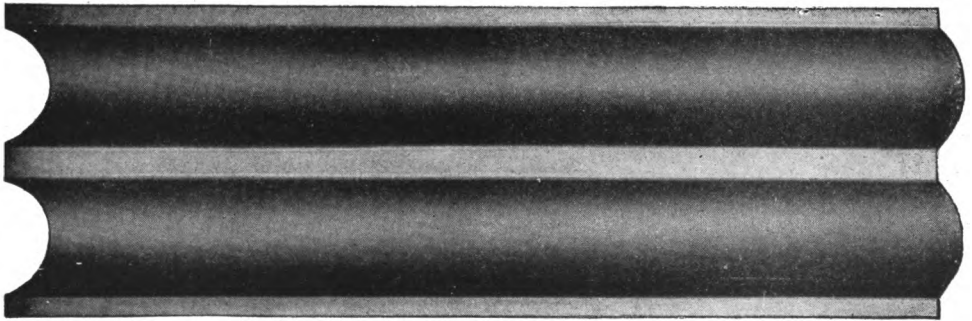


Fig. 499

**Tray "C."**—Core Tray made of No. 20 smooth steel, corrugated; size, 8 inches by 24 inches, for cores  $2\frac{3}{8}$  to 3 inches.

Large trays for cores  $3\frac{1}{4}$  inches to 7 inches should be ordered according to size of core to be made. They are similar in construction to the "C" core trays, but are made of heavier metal and are 24 inches to 36 inches long, depending on the sizes of cores.

Price—C..... \$ .75 each

Special sizes on application



## Perforated Malleable, Aluminum Core and Flask Plates

A new departure for the core room. A core plate light, durable, with a real value even when accidentally broken—which may also be used for a flask plate. No dead weight for the core makers to lift.

Observe the re-enforcing braces across the back in cut shown below. They make for rigidity and strength.

Guaranteed not to buckle from heat.

### SIZES

12 x 18    12 x 14 $\frac{1}{4}$     13 $\frac{3}{8}$  x 19 $\frac{3}{4}$     9 x 30

Other sizes made to order, specify quantity.

Prices on application.

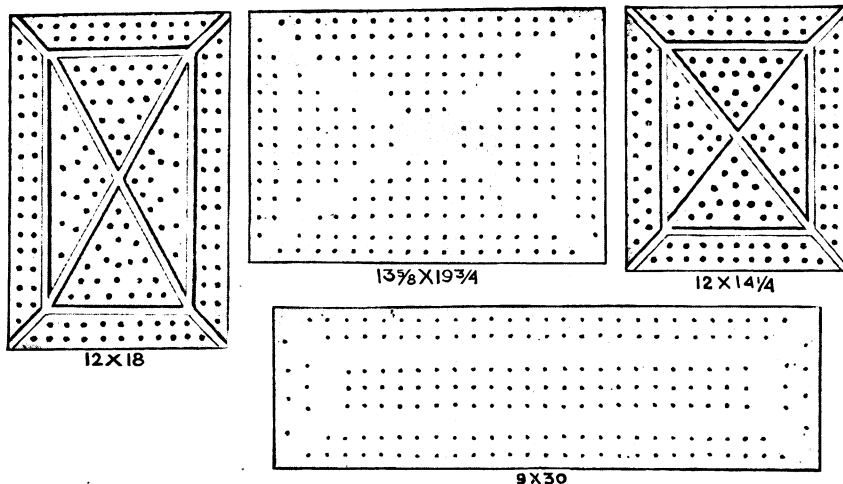


Fig. 500

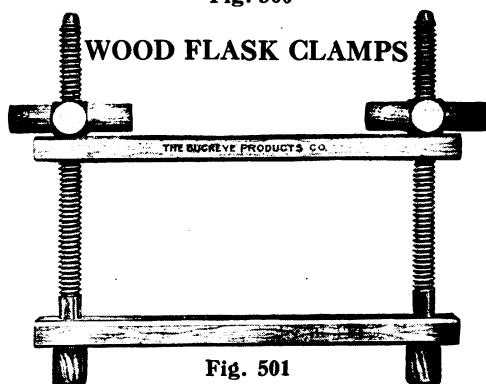
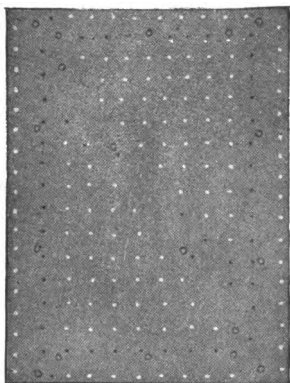


Fig. 501

Made of good seasoned stock in all sizes.

Prices on application

## Wadsworth All-Steel Bottom Plates and Core Trays



### WADSWORTH ALL-STEEL BOTTOM PLATES TAKE THE PLACE OF BOTTOM BOARDS

The Wadsworth Reinforced All-steel Snap Flask Base Plates. Unbreakable; cannot be burnt up; cheaper than making a pattern; perfectly straight; cheaper than cast iron; only one third the weight.

A prevention against burnt bottom boards, a condition now existing in a great many foundries, and overcome at a trifling cost.

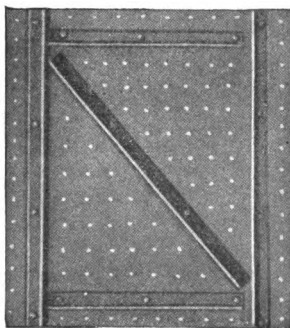


Fig. 502

### WADSWORTH ALL-STEEL CORE TRAYS

Unbreakable; reinforced; cheaper than making a pattern; perfectly straight; cheaper than cast iron; only one-third the weight.

A prevention against crooked cores, a condition now existing in a great many foundries, and overcome at a trifling cost.

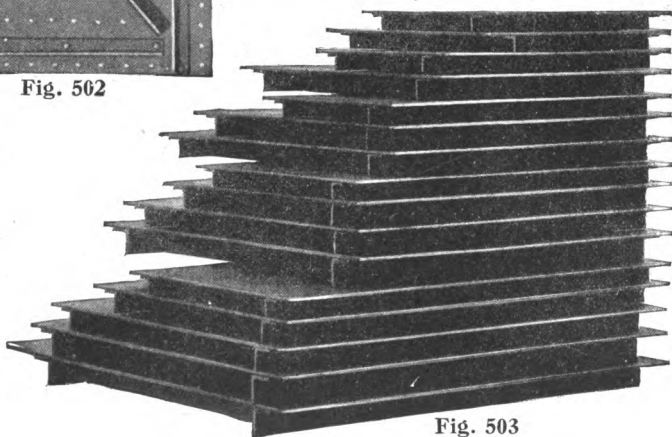


Fig. 503

Standard Sizes carried in stock:

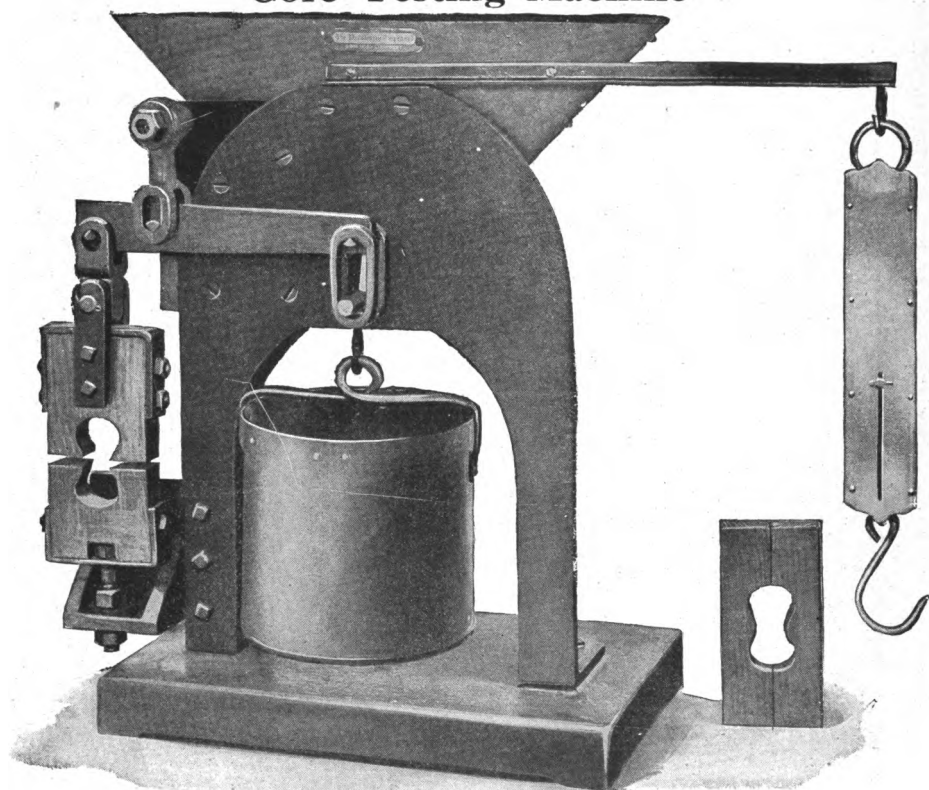
#### SIZES

9 x 12	12 x 12	12 x 20	15 x 18	18 x 18	20 x 20
9 x 15	12 x 15	12 x 24	15 x 20	18 x 20	20 x 24
9 x 18	12 x 18	15 x 15	15 x 24	18 x 24	24 x 24

Larger and special sizes quoted upon receipt of specifications.

Prices on application

## Core Testing Machine



**Fig. 504**

The Core Testing Machine illustrated above was developed after many tests had been made. This machine uses a core made in the form of the briquet. In the machine shown the leverage is so proportioned as to give a ratio of 1 to 3. The mixture to be tested is made into cores in the core-box shown, standing between the machine base and the scales in the accompanying illustration. The cores are then baked at a standard temperature and placed between the grips shown at the left of the machine.

The hopper back of the machine is filled with shot, and the small pin working in the slotted link above the bucket controls the valve at the bottom of the shot hopper. After the core is in place the bucket is hung on the hook and the pin controlling the valve raised. This starts the shot to flowing into the bucket. The moment the core breaks, the bucket drops and the slotted link throws the control pin down, shutting off the shot supply. The shot are then weighed on the scales shown at the right. When standard scales are used the weight indicated on the balance has to be multiplied by 3 to obtain the weight which broke the core.

For oil sand mixtures and other similar strong cores, this system of levers is absolutely necessary, as without it the weight of shot necessary to break the core is too great for convenient handling. When very weak mixtures or steel foundry facing mixtures are to be tested, an extra pair of jaws are provided, giving a direct pull, but these are not required in most cases, and are only furnished on special application.

**Price, \$175.00.**

**Page 216**

CORE AND SAND CRUSHER

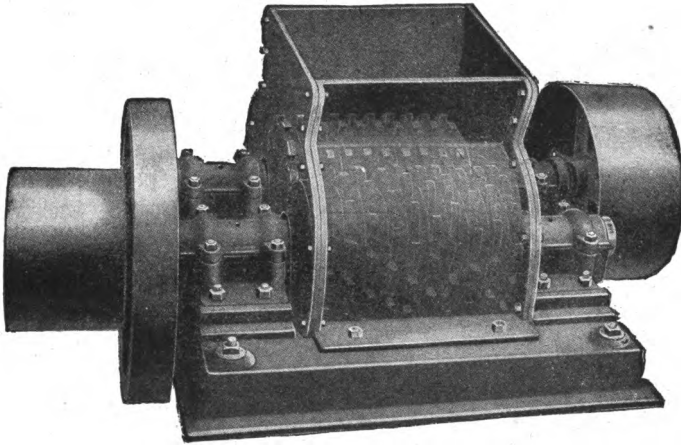


Fig. 505

This crusher is without a peer for the crushing and breaking up of old cores, lumpy sand, dry clay, etc., which is often discarded as waste.

The cutters are of cast steel, the bearings are ring-oiling, and rolls are adjustable to regulate the fineness of material being ground.

The flywheel and pulleys are turned all over to insure perfect balance.

This crusher is built in two sizes. The No. 1 has a hopper 16½ inches square and cutters 12 inches in diameter and 16½ inches long.

No. 2 has a hopper 13 inches square and cutters 9 inches in diameter and 12½ inches long.

Size	Floor Space	Weight, Pounds	Pulley on Cutting Roll, Ins.	Pulley on Feed Roll, Ins.	Speed Cutting Roll	Speed Feed Roll	H. P. Required	Price
No. 1	3' 2"x4'	2,000	12x8	24x6	750	75	10	\$420
No. 2	2' 5"x3' 8"	600	12x6	16x6	600	60	5	180

## IMPROVED ROD CUTTER

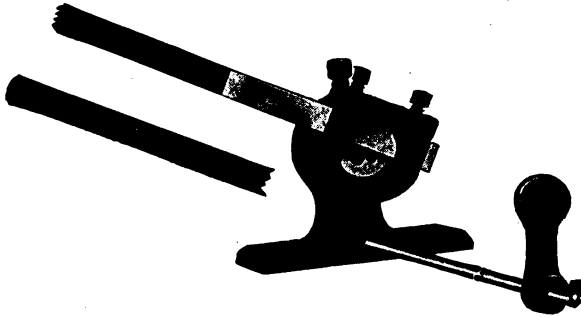


Fig. 506

free from the tool. The cutters are of high-grade tool steel; cannot spread apart, and may be easily sharpened. Cast parts are made of malleable iron. Thoroughly guaranteed.

No.	Capacities	Price
1	Up to $\frac{5}{8}$ " diam.	\$20.00
2	Up to $\frac{3}{8}$ " diam.	12.00

This Rod Cutter is of simple construction and very powerful. With the gauge set, the operator may cut rapidly any size stock up to its greatest capacity. The piece being cut is always in sight, and is sheared square off and drops

## COMBINATION SHEAR AND ROD CUTTER

Hand power splitting shear and rod cutter. Will shear  $\frac{1}{8}$ -inch sheet metal any width or length. Will shear  $\frac{1}{2}$ -inch round iron.

This cut represents our combined Rod Cutter and Splitting Shear. Gauges are provided for cutting sheet-metal and round iron.

Price, \$35.00 each.

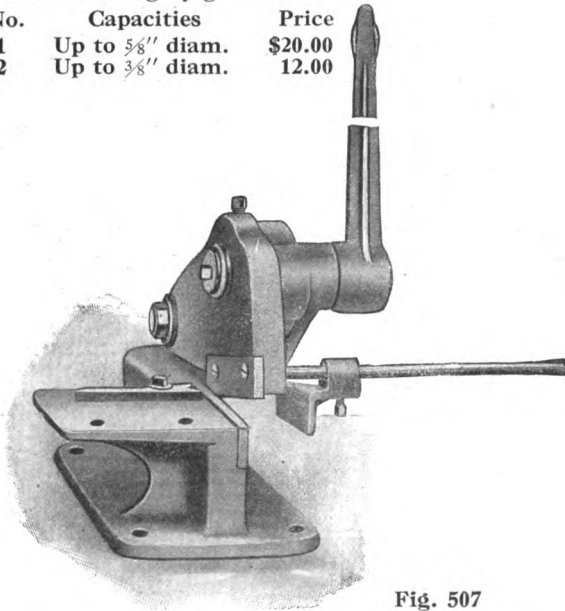


Fig. 507

## CLIMAX CORE WIRE CUTTERS

This illustration shows an improved form of core wire cutter for cutting wires from 1/16 to  $\frac{1}{2}$ -inch diameter.

The convenience, accuracy, and economy effected by using this machine, over the old method of cutting, will be readily appreciated.

Price, \$60.00 each.

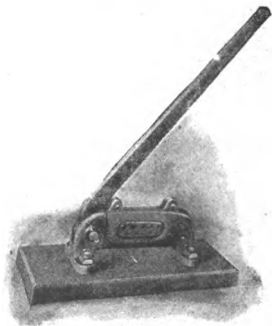


Fig. 508

## Marvel Rod Cutter

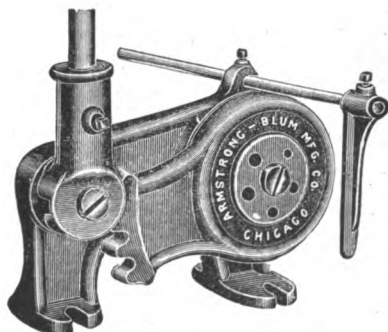


Fig. 509

Cutting dies have round openings of correct size to cut off rods and wire within the capacity of the machine, which insures good work, with ends round and true.

The Marvel Rod Cutter is arranged to bring the lever at a convenient height from the bench, and the gearing is placed to remove all danger of crushing the operator's hand. The round steel lever can be instantly removed when desired.

The center of leverage is down low, which lessens the pull on the bench.

The neat gauge is very handy when cutting a number of pieces of the same length. Made in three sizes.

Prices, complete with lever, gauge, and gauge rod, as follows:

No. 5.—Cuts rods $\frac{1}{8}$ to $\frac{3}{8}$ -inch, inclusive.	Weight, 12 lbs.....	\$9.00
No. 6.—Cuts rods $\frac{3}{8}$ to $\frac{5}{8}$ -inch, inclusive.	Weight, 35 lbs.....	15.00
No. 7.—Cuts rods $\frac{5}{8}$ to $\frac{7}{8}$ -inch, inclusive.	Weight, 95 lbs.....	30.00

## COMBINATION WIRE PLIERS AND CUTTERS

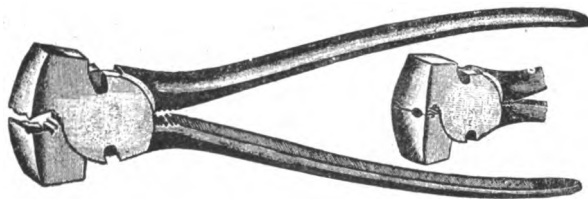


Fig. 510

These Pliers are the handiest and best made for the core room. Cut, straighten, and splice.

Price each, 10 inches long, \$2.00.

## Core Wire Cutting Machine

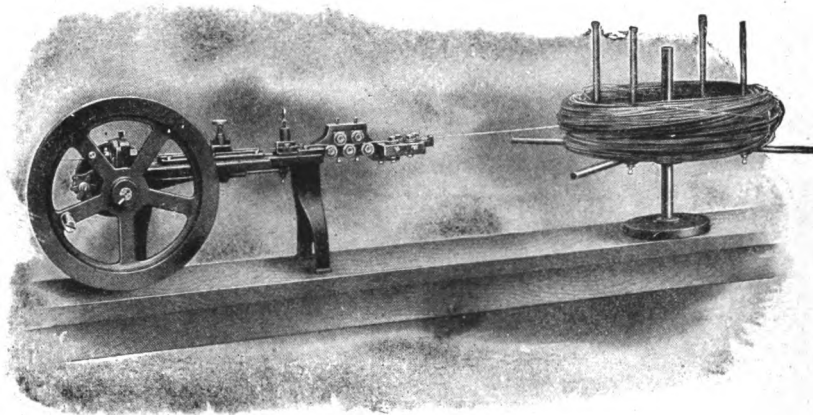


Fig. 511

This machine will cut core wires from an inch long up to 12 inches, of any kind of wire up to  $\frac{1}{8}$ -inch diameter. The operation is simple and direct, so that there are no parts to wear out or get out of order. The wire is fed directly from a coil, the machine straightening and cutting it to desired lengths.

The operations are so quick that a man can cut in a half hour as many core wires as it required two men a whole day by the old method. Each wire is measured automatically, so that it doesn't make any difference how fast the machine is worked, all wires will be exactly alike. The wire straightener is a part of the machine, and can be adjusted to meet any size of stock. It will straighten, cut to length, and handle core wires rapidly and cleanly.

It does away with clipping shears and all the old methods which have been a source of trouble to all foundries.

**Price, \$200.00**

# CLIMAX CORE WIRE STRAIGHTENERS

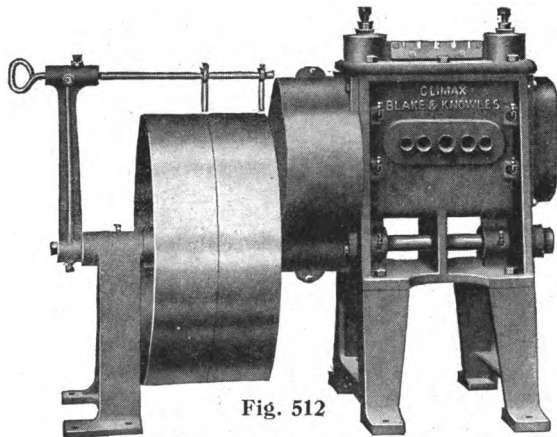


Fig. 512

## With Legs and Belt Shifter

An important item in every foundry is the wire used in strengthening cores. The wire, which is bent and twisted into every conceivable shape to conform to various core requirements, must either be straightened so as to be available for future use or thrown into the scrap-heap. The expense of straightening the wires by hand is too great to be considered, from an economical point of view, so that unless some cheaper means for this work can be employed, the material is practically wasted. The Climax Straightener was devised to supply this means, and a long and constantly-increasing list of users attests its remarkable success. It is a very simple and durable machine, and can be easily operated by the most unskilled labor.

Size of Machine	Ship- ping Wt., Lbs.	Prices			Diam. Pulley, In.	Face Pulley, In.	H. P. Neces- sary to Drive	Floor Space, In.
		Ma- chine	Belt Shifter	Stand for Machine				
No. 2—For Wires 1/16, 3/8, 3/16, 3/4"	265	\$275	.....	\$45.00	10	3 1/4	3	29x12
No. 2 1/2, for Wires 3/16, 1/4, 3/8, 1/2"	1,000	505	\$36.00	Included with Machine	24	5	4	47x24
No. 3—For Wires 1/4, 3/8, 1/2, 5/8, 3/4"	1,680	720	36.00	Included with Machine	30	6 1/2	5	53x30

Above machines can be fitted for wires of different diameter than listed. Changes, however, must be made between the limits of smallest and largest sizes given regularly for each machine. An extra charge is made for this.

No. 2 Machine is not regularly fitted with legs, but can, however, be furnished if desired.

Belt shifters are not regularly furnished with these machines. Can not be furnished for No. 2 machine.

Further information on application,



## Buckeye Superior Core Oven

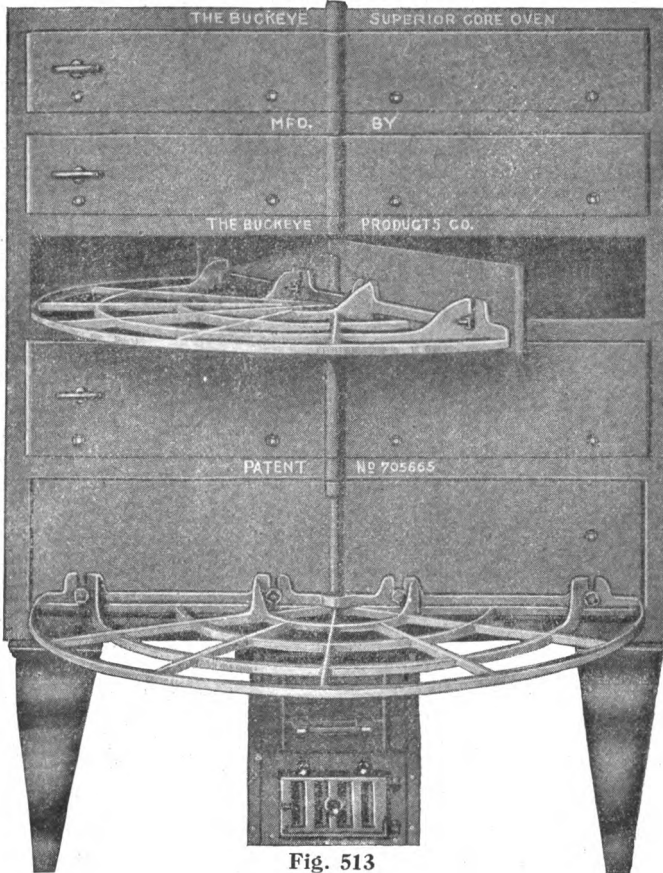


Fig. 513

### COMMODIOUS—ECONOMICAL—SUBSTANTIAL

Most practical Core Oven available to-day for foundry use. The arrangement and operation of the doors, as shown in above illustration, swing on a heavy rod in front center of oven. This is a decided improvement over the drawer or sliding type; there is no jar to knock over and break the cores. Another feature in construction is that there is no escape of heat in loading or unloading of shelves, therefore a saving in fuel. Is arranged for burning coke, charcoal, natural or artificial gas.

**DIMENSIONS.**—Height over all, 66 inches; width, 58 inches; extreme depth, 29 inches; approximate weight, 1,400 pounds.

Has two 11-inch doors, with 10-inch inside shelf clearance, and three 7-inch doors, with 6-inch inside shelf clearance.

**Price, \$250.00**

**Page 222**

BUCKEYE SWING SHELF CORE OVEN

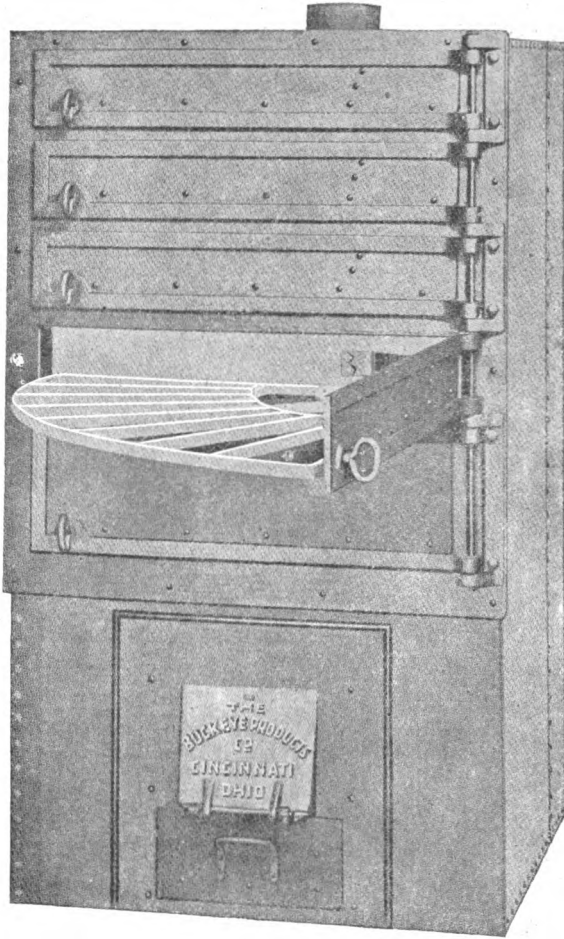


Fig. 514

The chief feature of this oven is the arrangement of the swing racks. These are made of cast iron, and so attached to the doors that when they are opened the racks swing entirely out, and a steel stop attached to the other straight side closes the opening. There are four openings 4"x34", and one 9"x34". The free end or circular side of the rack does not jar or stick when in motion, and on this account the cores do not fall over or become damaged. The front of oven down to the stove is cast iron, and the balance of the body heavy sheet steel. Both sides and the back are double thick, with air space one inch wide between the two walls.

The hard coal or coke stove is made of steel, lined with heavy tile and fitted with plain grate sections. The dimensions are 14x24x9 inches. The top of the stove is left open, and no pipe is used inside the oven. Can also be arranged for gas, when so specified.

The dimensions are: Height, 5' 8½"; depth, 3' 2½"; width, 3' 5". Shipping weight, about 1,000 pounds.

Further particulars or explanation will be promptly given on request.

Price, \$200.00

## Combination Crucible Annealing, Core Baking and Mold Drying Oven

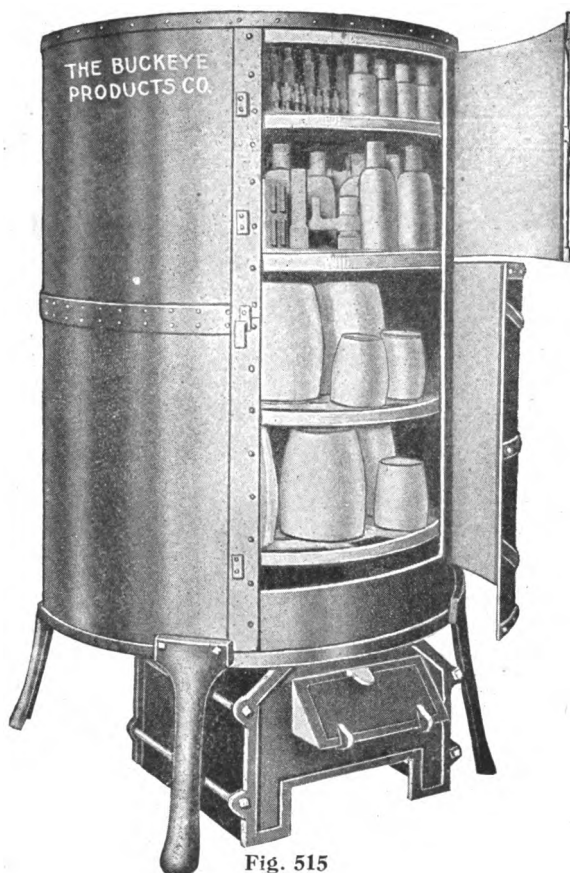


Fig. 515

This special Combination Oven for annealing crucibles, baking cores, and drying molds is a development of our Furnace Department in answer to a call for a practical device for one or all of the above uses. Shelves can be arranged as desired.

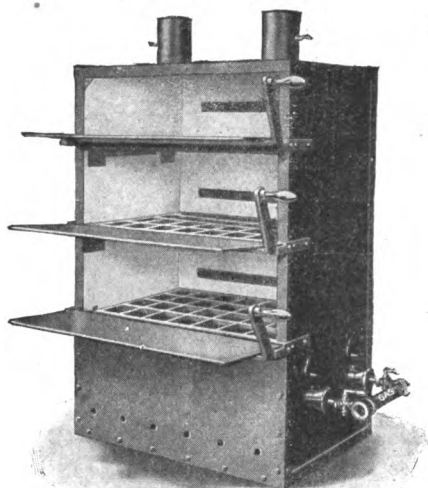
Arranged for Coke, Charcoal, Artificial or Natural Gas Fuel.

### DIMENSIONS

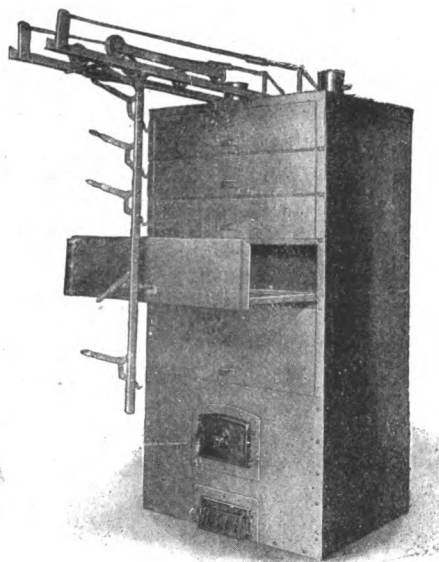
Height.....	89"
Diameter.....	52"
Number of shelves.....	4
Distance between shelves as desired. Standard distance.....	16"
Fire Box.....	19" x 19"
Number of Doors.....	2
Dimensions of Doors—Lower.....	36" x 29"
“ “ “ Upper.....	24" x 29"

Price on application.

MONARCH CORE OVENS



**Fig. 516**  
**"Arundel"—Drop Front—Gas**  
**For All Purposes, All Sizes, All Fuels, Portable or Bricked**



**Fig. 517**  
**"Acme"—Coke—Coal**  
**For All Purposes, All Sizes, All Fuels, Portable or Bricked**

These various OVENS are designed for use in connection with any fuel desired—OIL, GAS, CHARCOAL, COAL, AND COKE. Designed for any amount of work required. They are of the well-known patented type of MONARCH DRAWER-PULL, in connection with double overhead trolley tracks. Orders entered for any height, width, or depth, and any division of shelves, according to height desired. Ovens arranged SINGLE, DOUBLE, or TRIPLE, Portable or Bricked. Take up very little space. Shelves can be drawn out singly or all together; vented with 2 pipes at top, and ready for immediate shipment.

NOTE.—The oven is practically closed by the sheet steel shutters, which form the back of the shelves. The lower shelf and sides are lined with HEAVY SHEET ASBESTOS. Shutters are so arranged to prevent the escape of heat if the tray is drawn out for receiving or discharging.

The following are standard sizes and available for quick shipment.

No. 1.—2'x3'x4' }	Arundel Type.	3 Shelves, for oil or gas.
No. 2.—2'x3'x4' }		2 " " Oil or coke.
No. 3.—2'x3'x5' }		2 " " Oil or Gas.
No. 4.—2'x3'x5' }	Acme type	4 " " Coal or Coke.
No. 5.—2' 9"x3' 6"x6' 6"		5 " " Coal or Coke.
No. 6.—3'x4'x7' }		5 " " Coal or Coke.
No. 7.—Double Oven, 8 Shelves	{ One Side Other Side	Size Shelves, 2'x4'x1'.
No. 8.—Double Oven, {		4 Shelves 2' 3"x4'x1'.
		8 Shelves 2' 3"x4'x6".

Prices and Further Data on request

# SUPPLEMENTARY SHELF PORTABLE CORE OVEN

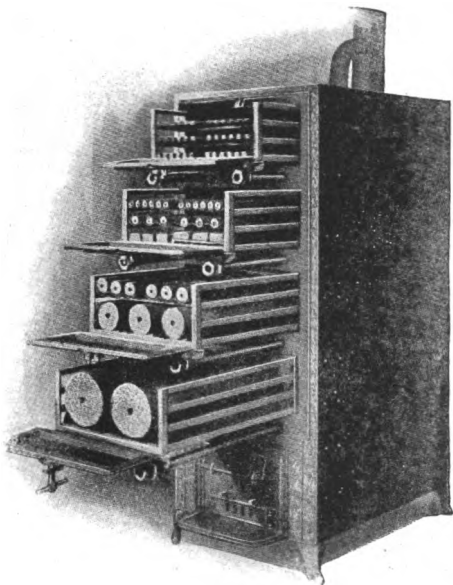


Fig. 518

Illustration shows a view of our Supplementary Shelf Drawer Oven, which is self-contained and economical. The one shown is equipped with four drawers, supported by rollers at the back and by pipe guides at the front. The drawers are removed from the oven by slipping a pair of handles into the pipes shown in the front, lifting them slightly, and running them forward by means of the wheels on the inside at the back of the shelves. The shelves are self-sealing. When they are drawn forward a plate closes the opening, so that the baking of the cores on the other shelves goes on without interruption.

The illustration shows the shelves open and drawn to different distances, to illustrate the variety of cores which can be baked in an oven at one time. The large cores on the lower shelf are seven inches in diameter.

One point in this oven to which especial attention is called is the provision for supplementary shelves dividing the main drawers into divisions. As shown in the illustration, the two highest drawers are divided into three shelves each, the next into two, and the bottom one is arranged without any supplementary shelves. The facility with which these different divisions can be put in will enable the operator to dry any sizes of cores readily.

The fact that the fronts of the doors drop down, as shown, enables the core plates to be taken out easily.

Dimensions are:

Height, Inches	Width, Inches	Depth, Inches	Weight, Pounds	Price
70	28½	39¼	1,025	\$270.00

## MILLETT CORE OVENS

### Stationary Type

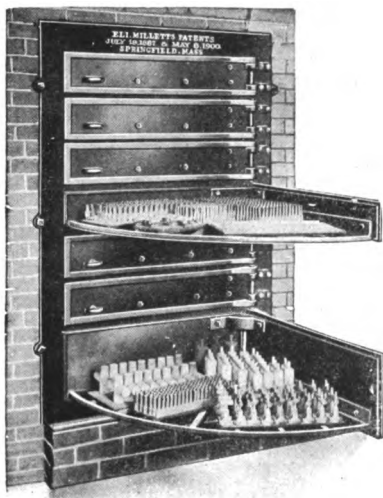


Fig. 519

As shown in the cut, in swinging a shelf outward the rear door closes the opening, thereby retaining the heat in the oven, which device is a great saver of fuel. By actual use, this is found to be the most convenient and useful arrangement for cores ever invented.

The cores are placed on a set of swinging shelves, which operate independently of each other.

This oven is made usually with six 5-inch and one 10-inch doors.

We can, however, furnish ovens with almost any arrangement of door desired.

Dimensions of iron front are:

Height, Inches	Width, Inches	Width of Doors	No. of Doors	Weight, Pounds
65	32	32	7	1,000

Price.....\$150.00

### IMPROVED PORTABLE TYPE

This cut shows the Millett Patent Improved Portable Core Oven, all complete and ready to fire.

Can be arranged for burning coal, coke, or gas, as desired, without change in price. Usually made with one 10-inch and four 5-inch doors.

We can, however, arrange it with three 10-inch doors or six 5-inch doors.

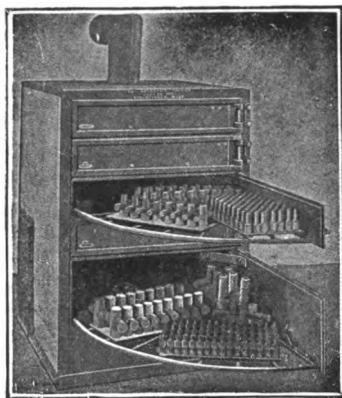


Fig. 520

Dimensions are:

Height, Inches	Width, Inches	Depth, Inches	No. of Doors	Area of Fire Box 144 sq. in.	Weight, Pounds
51	36	36	5		800

Price.....\$150.00

COLEMAN CORE OVENS

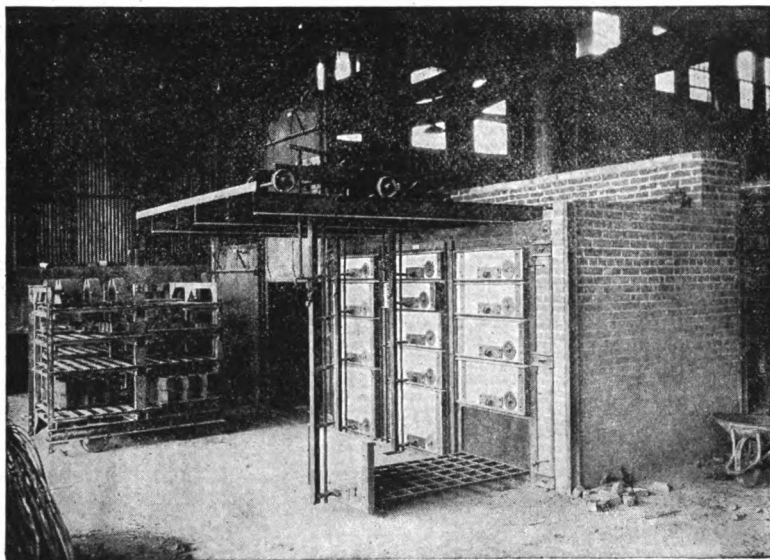


Fig. 521

The above illustration shows combination Car and Rolling Drawer Ovens, Gas Fired.

The Car Oven can be built to have a door at one end or a door at each end. The doors are of the curtain or shutter type, roll up on a shaft, and are operated by a hand-chain. This type of door is made necessary where there is limited head-room. Car ovens may be double-end, with transfer cars or turntables at each end: the green cores can go in one end, the baked cores drawn from the other end. Empty cars can be returned either through the oven or by tracks outside.

Can be arranged in batteries of from two to twenty-four; may also be arranged in combinations, as shown above.

The drawer type ovens are built with drawers running from 5 inches to 20 inches in height, each oven containing three to seven drawers, as desired. All standard drawers are 34 inches wide, and can be made 36, 45, 50, or 60 inches in length. We can offer 25 different drawer combinations to select from. The drawer runs on a differential roll on the oven end, and is carried by a trolley running on projecting steel beams on the front end. The trolley supporting the drawer front is rigid, easily operated, and convenient. Arranged to burn Gas, Fuel Oil, or Coke. If interested, tell us your wants.

**Full information and prices gladly furnished.**

## Buckeye Duplex Mold Face Drier

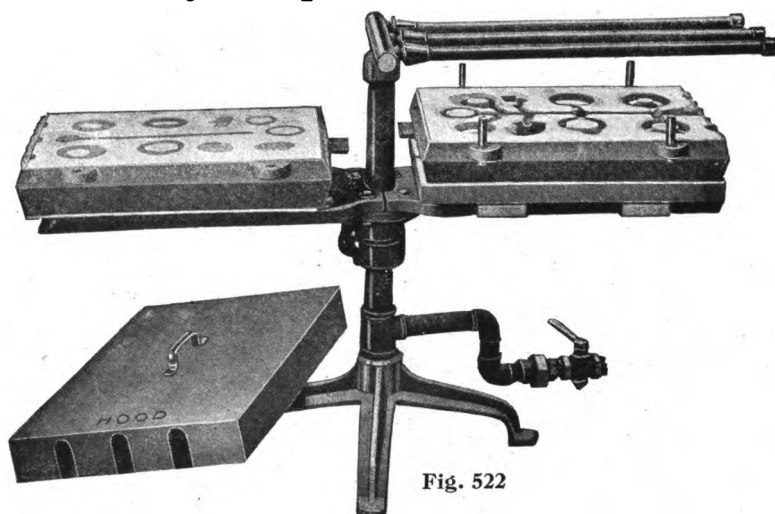


Fig. 522

### ESPECIALLY ADAPTED FOR BRASS FOUNDRY USE

The mold dries by gas heat on one table and cools on the other.

The tables revolve around the standard. When the dried and cooled mold is removed for pouring, a green mold takes its place, and, by a simple revolution of the table, passes under the covered gas flame, where the face of the mold is subject to the drying process.

One after another—very simple.

Standard size for 12 $\frac{1}{4}$ "x18"-flask molds.

Special sizes made to order.

Prices on application.

### COAL OR COKE DRYING STOVES

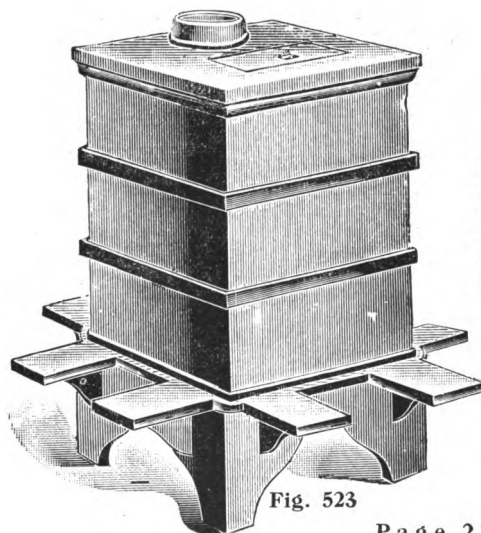


Fig. 523

#### For Brass Foundries

Height over all.....28 inches

Width.....15 inches

Length.....15 inches

Height of section.....6 inches

Flanges at bottom.....7 inches

Number of sections.....3

Price on application.

Tops and Bottoms fit any section; sections fit into each other.



## Rectangular Gas Burner

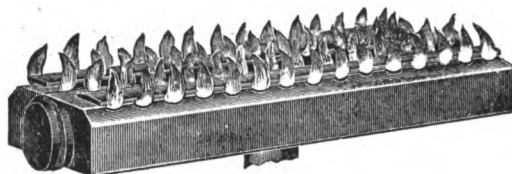


Fig. 524

This cut shows a cast-iron burner, with shedding-cap over holes to prevent dirt from falling into burner. Has plug in bottom at center of burner, also at end, so connection can be made either way. These burners are drilled on one or both sides, at no additional cost, if desired.

Length, Inches	Width, Inches	Size Intake, Inches	Price Each
12	4	1¼	\$1.40
14	4	1¼	1.70
16	4	1¼	2.00
18	4	1¼	2.30

## ADJUSTABLE DIAMOND GAS MIXER

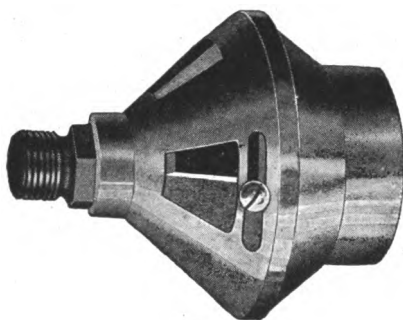


Fig. 525

This is the most convenient and best adapted mixer for use in connection with our Rectangular Gas Burner shown above. Furnished in black or nickel finish.

Outlet 1¼ in.	Inlet ⅜ or ½"	—Price—	
		Black	Nickel
		\$0.25	\$0.75

We can also furnish gas service and stop-cocks for above burner and mixer.

# STEEL ROLLING DOOR For Core Oven and Fire Doors

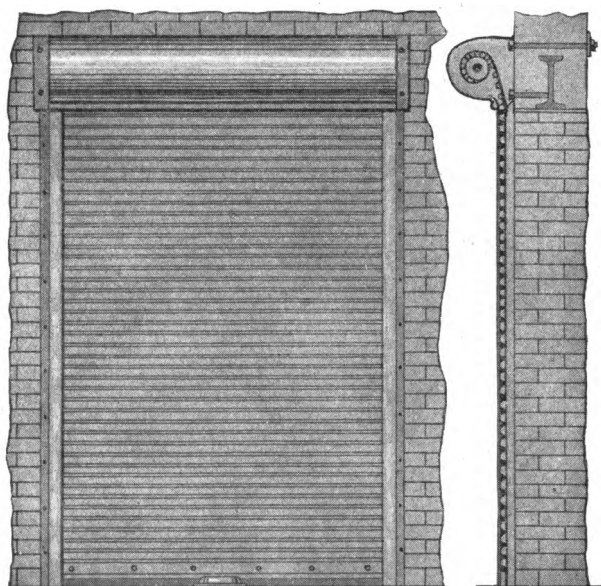


Fig. 526

These Steel Rolling Doors are made entirely of steel. They are composed of steel interlocking slats that coil above opening, being counterbalanced by springs. Ends of slats travel up and down in grooves bolted at each side of opening.

**INSTALLATION.**—Doors are placed to coil above the opening or under the lintel. They require 3 inches to 5 inches side-room, and 15 inches head-room for openings 12 feet high, or less, and 1 inch headroom additional per foot of height above this.

**OPERATION.**—Doors may be operated by hoist, gearing, or simply by hand, to suit any conditions. If used as fire-doors, they can be equipped with automatic closing device, when specified.

**ADVANTAGES.**—These doors are classed among the best fire-retardents for core ovens, doors, elevator shafts, and fire-wall openings. They are neat in appearance, occupy very little room, and, if properly cared for, will last for years. Doors are easily erected. Blueprints and instructions are sent with each shipment.

**ILLUSTRATIONS.**—The above illustrations show only one of the many doors we can furnish. We shall be pleased to furnish information and prices for special requirements.

# EMERY WHEEL BENCH GRINDERS

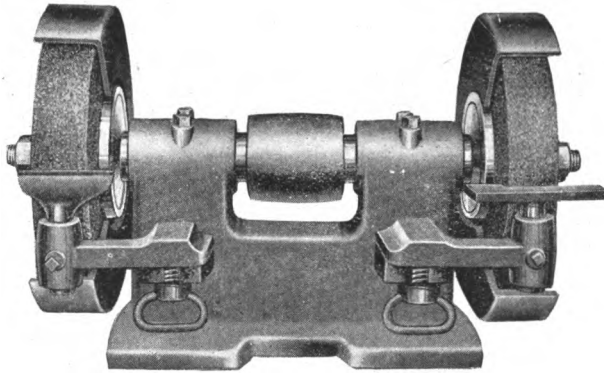


Fig. 527

## With Guards Attached

We are offering the best in design and construction that years of experience in this connection have developed. The neatness and solidity of the base design, the extra large flanges, wick-oiling feature, easily adjustable rest and guards, are the essentials most sought for by users of grinders. In addition, these are finished in the best machine tool manner. Countershafts have pressed steel hanger and ring-oiling bearings.

	No. 6	No. 7	No. 8	No. 10	No. 12	No. 14
Maximum size of wheel, inches.	6x1	7x1 1/4	8x1 1/2	10x2	12x2	14x2 1/2
Distance between wheels, in. . . .	6 1/2	8 1/4	9 1/2	12	13	16 1/2
Length of spindle, inches . . . . .	10 1/2	14	16	20	23	25
Length of bearings, inches . . . . .	2	2 1/4	3	3 1/2	4	5
Size of pulley . . . . .	2 1/8 x 1 3/4	2 1/4 x 2	2 3/4 x 2 1/2	3 x 2 3/4	4 x 4	4 1/2 x 4 1/4
Size of base . . . . .	4 1/4 x 6 3/4	4 3/4 x 7 3/4	6 1/2 x 9 1/2	7 x 12	8 x 13 3/4	8 x 16
Diameter of flanges . . . . .	3	3 1/2	4	5	6	7
Floor space column . . . . .	10x12	12x14	14x18	14x20	15 1/2 x 24	16x24
Price of head . . . . .	\$5.00	\$7.00	\$8.00	\$11.50	\$15.00	\$19.00
Price of countershaft . . . . .	4.00	5.50	7.50	9.50	12.00	14.50
Price of wheel guards, pair . . . . .	1.75	2.00	2.25	3.00	4.00	6.00

We can furnish guards for all grinding machines, plain and dust collecting.

## STERLING EMERY WHEEL BENCH GRINDERS

### No. 00 Sterling Grinder

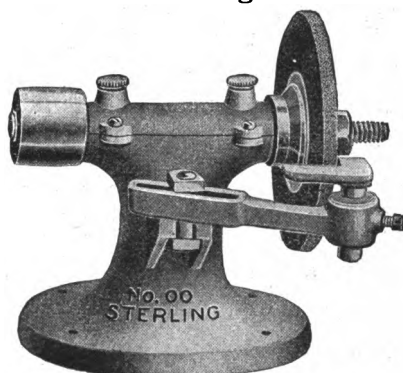


Fig. 528

Bench space required .....	10x10 inches
Length of spindle .....	14 inches
Bearing .....	2 3/4 x 13/16 inches
Diameter between flanges .....	3/4 inches
Collar on arbor .....	3 inches
Height to center of spindle .....	7 inches
Pulley .....	2 1/2 x 2 1/4 inches

Weight, 25 pounds. Price, \$10.00.

Price does not include wheel.

This machine is intended to supply the demand for a cheap emery wheel stand. It will carry emery wheels of any diameter up to and including 10x1 1/2.

### No. 1 Sterling Grinder

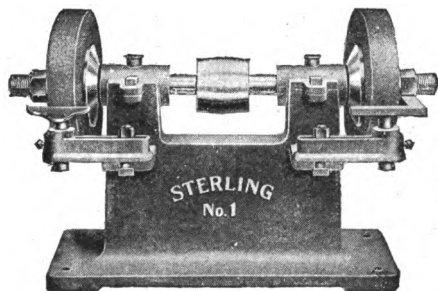


Fig. 529

Bench space required .....	18x5 inches
Length of arbor .....	18 inches
Diameter of arbor between flanges .....	3/4 inches
Bearings .....	3 x 7/8 inches
Distance between wheels .....	12 7/8 inches
Diameter of flanges .....	3 1/2 inches
Height to center of arbor .....	7 1/2 inches
Pulley .....	2 1/2 x 2 1/4 inches

Weight, 35 pounds. Price, \$15.00.

Price does not include wheels.

This grinder will carry two wheels 10x1 inch and smaller.

530

## COUNTERSHAFTS

We can supply Countershafts for either of the above grinders.

Our countershafts have solid base, and can be placed in any position.

Price, \$15.00 each.

## STERLING EMERY WHEEL FLOOR GRINDER

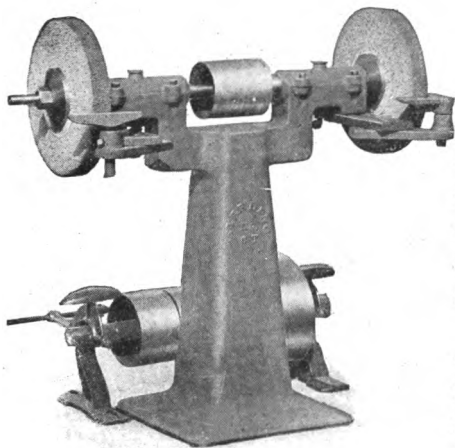


Fig. 531

### No. 6 "T" Grinding and Polishing Machine

We herewith illustrate a new machine, which we introduce to the trade, intended to meet all the wants of the manufacturers using grinding and polishing wheels, such as foundries, plow factories, machine shops, etc.

We furnish this machine with tight and loose pulleys or countershafts, as may be desired, and in many cases have arranged the arbors with cone pulleys.

#### DIMENSIONS

Steel spindle, length.....	48	inches	Height of machine.....	35	inches
In the bearings.....	1 5/8	"	Base.....	19x19	"
Between the flanges.....	1 1/4	"	Pulleys usually furnished	4x4	"
Bearings are self-oiling,			Distance between wheels..	34	"
length.....	10	"			

Machine will carry wheels up to 4 1/2 inches thick.

Distance between wheels, 34 inches.

Price, \$60.00.

532

### No. 2 Countershaft

Drop of hangers, 8 inches; tight and loose pulleys, 8x4 1/2 inches; driving pulleys, 12x4 1/2 inches. Total weight of complete machine, 500 pounds.

Speed for general grinding should be about 500 revolutions per minute. For polishing, speed may be increased to about 625.

Price, \$20.00 each.

533

### Guards

We are in position to furnish guards for Sterling Grinding Machine. They are adjustable, and so arranged that they follow the wheel when it wears down.

No. 00.....	\$5.00	each
No. 1.....	7.20	"
No. 6-T.....	7.20	"

# IMPERIAL EMERY WHEEL FLOOR GRINDERS

With Guards Attached

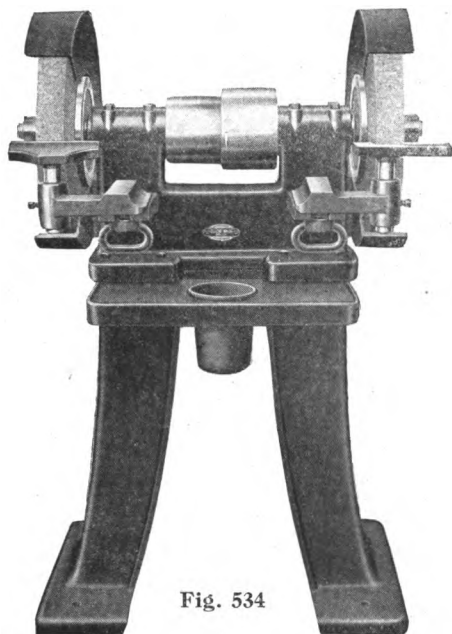


Fig. 534

This type of machine is much larger and heavier than the regular make of Grinder, is fitted with step cone pulleys, so that speed of wheels may be changed as they wear down. Can be furnished with cabinet, plain, or dust-collector stand.

In addition to the regular plain guard and dust-collecting guard furnished with this machine, we can fit it with substantial hinged type of wheel-guard. These guards, in addition to being extra heavy, are fitted with opening for exhaust to carry away dust from wheel, and provision is also made to cover end of spindle. May be furnished with larger spindles

than those described below, at slight additional cost.

Grinders	No. 16	No. 18
Maximum size of wheels.....inches	16x2½	18x3
Distance between wheels.....inches	18½	23
Length of spindle.....inches	28	35
Length of bearings.....inches	5½	6
Diameter spindle in bearings.....inches	1⅜	1 11/16
Diameter spindle between flanges.....inches	1¼	1½
Height table to center spindle.....inches	10	11
Size of base.....inches	8x17½	8¾x2
Size of pulley.....inches	5x4½	5x6x4½
Diameter of flanges.....inches	8	9
Floor space of column.....inches	18x25	20x28
Weight of countershaft.....pounds	168	182
Price of head.....	\$23.50	\$29.50
Price of countershaft.....	16.50	22.00
Price of plain column.....	16.50	23.00
Price dust-collecting column.....	23.20	29.00
Price plain wheel guards.....pair	8.10	8.30
Price dust-collecting guards.....pair	10.30	10.50

## Swing Frame Grinders

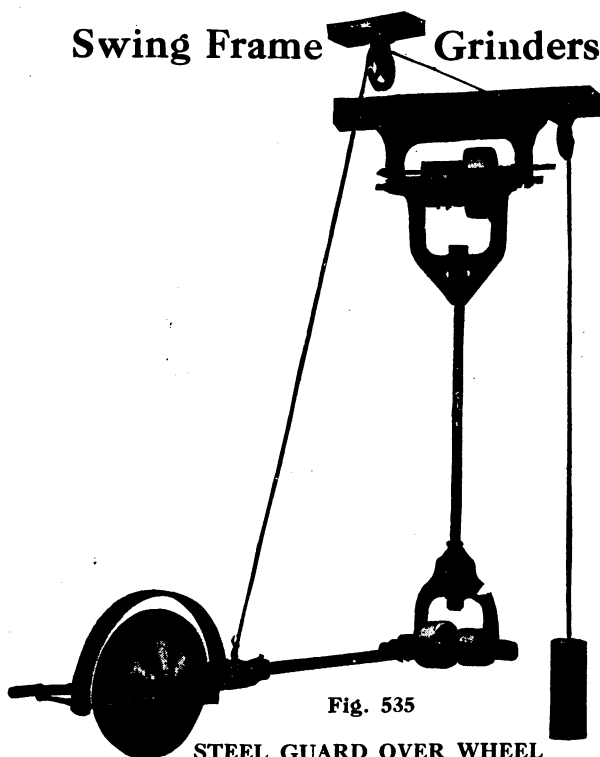


Fig. 535

### STEEL GUARD OVER WHEEL

**16-Inch**  
 Diam of Spindle...  $1\frac{1}{2}$ "  
 Diam. of Bearings...  $1\frac{1}{4}$ "  
 Diam. of Flanges... 7"  
 Tight and Loose Pulleys.....  $8 \times 4$ "  
 Speed of Countershaft, 300 R. P. M.  
 Weight complete, about 450 lbs.  
 Machine fitted with pulleys for V-shaped belts.  $2\frac{1}{2}$ " flat belts can be used.  
 Will carry 16 x  $2\frac{1}{2}$ " straight side wheel or safety shape  $\frac{3}{4}$ " taper 16 x 2 wheel.  
 Without extra collars, Price.....\$90.00

**20-Inch**  
 Diam. of Spindle...  $1\frac{3}{4}$ "  
 Diam. of Bearings...  $1\frac{1}{2}$ "  
 Diam. of Flanges... 10"  
 Tight and Loose Pulleys.....  $8 \times 4\frac{1}{2}$ "  
 Speed of Countershaft, 300 R. P. M.  
 Weight complete, about 700 lbs.  
 Machine fitted for flat belts  $3\frac{1}{2}$ " wide.  
 Will carry 20 x  $3\frac{1}{2}$ " straight side wheel or safety shapes  $\frac{3}{4}$ " taper 20 x  $2\frac{1}{2}$ " wheel.  
 Without extra collars, Price.....\$125.00

**24-Inch**  
 Diam. of Spindle... 2"  
 Diam. of Bearings...  $1\frac{5}{8}$ "  
 Diam. of Flanges... 12"  
 Tight and Loose Pulleys.....  $8 \times 5$ "  
 Speed of Countershaft, 300 R. P. M.  
 Weight complete, about 1,250 lbs.  
 Machine fitted for flat belts  $4\frac{1}{2}$ " wide.  
 Will carry 24x4 straight side wheel or safety shape  $\frac{3}{4}$ " taper 24 x  $2\frac{1}{2}$ " wheel.  
 Without extra Collars, Price.....\$184.00

The prices printed do not include belts or wheels.

These machines are designed for grinding work that is too heavy or unwieldy to be lifted and carried to the ordinary grinding machine.

When ordering always give the distance from the ceiling to the floor, in order that we may furnish the correct length of tubing. These machines are so constructed that all stretch in the belt can be readily taken up.

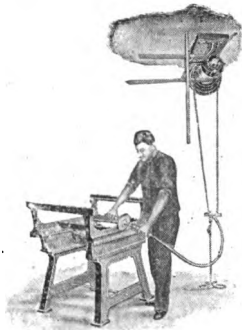


Fig. 536

### PORTABLE EMERY GRINDER

This Portable Grinder was designed for cleaning and grinding large and heavy castings, for buffing and polishing metals, etc.

Complete outfit consists of Flexible Shaft, Stop Clutch, Clamp Spindle, and Countershaft.

Prices as given below for complete outfits do not include rope couplings or emery wheels.

No.	3	4	5	6
Wheel capacity.....	4x3/4	6 x1	8x1	10x1
Size of pulleys.....	2 1/2x5	2 1/2x5	3x6	3x6
Speed, R. P. M.....	1,300	1,200	1,100	1,000
Rawhide rope, per foot.....	\$0.40	\$0.40	\$0.45	\$0.45
Couplings.....	.25	.25	.25	.25
Price complete.....	\$55.00	\$67.00	\$85.00	\$105.00

### FLEXIBLE GRINDER

This tool is designed and built for use in foundries and steel-working industries. The motor shaft combination is mounted on a truck, making it easily transportable to any part of the shop, eliminating the necessity of taking the work to the tool, thus saving time and cutting cost.

The D. C. Motor is of the Multi-speed type, giving a range of speed from normal to 100 per cent above normal, thus securing the proper cutting speed for worn as well as new abrasive wheels.

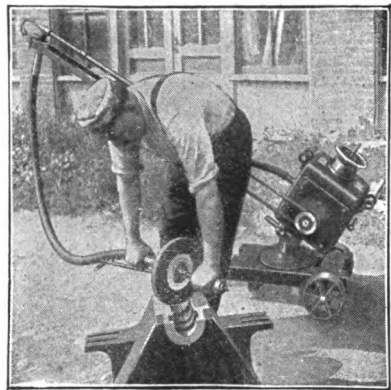


Fig. 537

The A. C. Motor is a constant speed motor, but extra pulleys, which can be supplied with this outfit, enable the operator to secure the desired speeds.

By means of the swiveled suspension work can be carried on over a large area.

Can be arranged for drilling by supplying the various accessories.

No.	4	5	6	8
Wheel capacities.....	6x1	8x1	10x1 1/2	12x2

Motors.—Can supply for 110 and 220-volt, D. C. current; 25, 40, 60-cycle, single, and two and three-phase A. C. current.

Prices on application



## U. S. DIRECT CONNECTED GRINDER

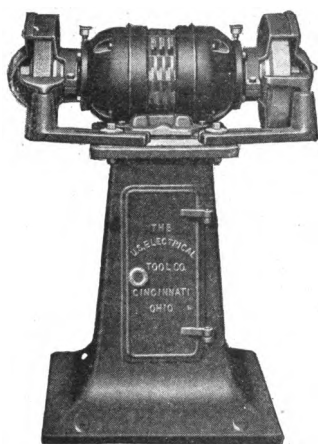


Fig. 538

This Grinder is self-contained, readily installed, and may be located or re-located at will in the most advantageous positions with respect to the work to be performed.

The absence of belts, shafts, and shaft hangers, allowable when direct connected tools are employed, permits the free use of cranes, and affords better light and more advantageous location of each working unit. The bearings of direct-connected tools as well are relieved from any belt-pull or slippage, and, in general, greater efficiency and increased shop output results.

Motors are totally enclosed and equipped with especially heavy shafts and large dust-proof bearings, to insure reliability and minimum wear. Ball bearings used on our standard machines. King oiled type bearings can be furnished if desired. Motors require no starting box. Emery wheels not furnished.

Alternating current grinder made for 220 to 440 volts, 25 or 60-cycle, 2 or 3-phase.

Made in two sizes, three and five horsepower. Alternating current or direct current.

Prices on application.

## U. S. BENCH GRINDER

### Attach to Your Lamp Socket

This grinder is held very rigidly. There is no vibration in the motor. The motor can be raised or lowered to suit the height of centers, or can be swiveled at any angle. The angle plate straddles the tool post of lathe, using tool to hold same. It is considered to be the most practicable center grinder ever designed. Bearings are adjustable to wear, and dust-proof. Grinder can be set at any angle or entire motor reversed for grinding close to tail-stock center. Motor is air-cooled. Direct or alternating current.

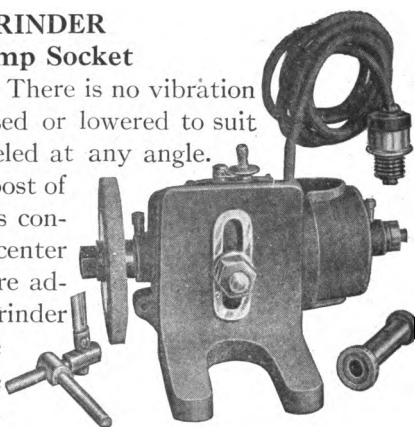


Fig. 539

Type	Volts	Dimensions	Weight	H. P.	Speed	Price
HB-110	110	4"x11"	20 lbs.	1/4	4500	\$50.00
HB-220	220					

Size of emery wheel, 6x3/4x1/2 inch. Ten feet of cable. One attachment plug.

## Emery Carborundum Wheels



Fig. 540

Emery and Carborundum Wheels are made of many different sizes of grains and degrees of hardness. Below we give a table of grades and hardness:

Kind of Work	No. of Emery or Corundum	Degree of Hardness
General machine work .....	30 to 36	3¼ or 3½
Large malleable castings .....	16	3¾
Small malleable castings .....	20	3½
Chilled iron castings .....	16	3¾
Wrought iron .....	16	3¾
Rough grinding, general foundry use .....	16	3½
Brass castings .....	30	3
Bronze castings .....	20	3½
Lathe and planer tools .....	36	3¾
Small tools .....	60	3¾
Stove mountings .....	20	3¾
Drop forgings .....	30	3½
Car-wheel grinding .....	20	3½
Large steel castings .....	16	3¾

It is imperative when ordering that you state the diameter, thickness, size arbor, what work wheel is intended for, and speed if possible.

Prices on application.

## Rub Stones

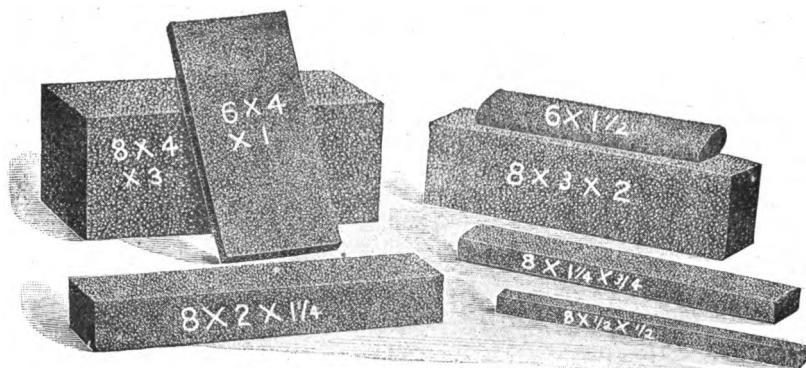


Fig. 541

Rub Stones are made in many different sizes and grits for cleaning and smoothing surfaces of castings. Are made by the vitrified process, and can be used with oil, water, or dry.

The following sizes usually carried in stock:

Thickness, Inches	Width, Inches	Length, Inches	Per Dozen
4	4	8	\$49.50
3	4	8	36.90
3	3	8	25.90
2	3	6	13.50
2	2	6	9.45
2	2	4	6.50
1	2	4	4.00

## EMERY WHEEL DRESSERS

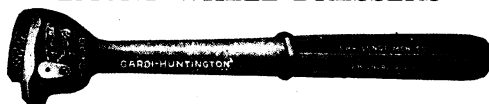


Fig. 542

We are supplying the Gardi-Huntington Dresser for truing, sharpening, and removing glaze from emery wheels. It is simple and inexpensive, and takes the place of the high-priced diamond tool, and does the work just as well.

Gardi-Huntington Dresser with two sets of cutters, \$3.00.

## 543 EMERY WHEEL DRESSER CUTTERS

We can furnish cutters for the Gardi Dresser. When ordering, state kind of Emery Wheels to be dressed. On cutters for coarse or large wheels, discs of same temper as cutters are furnished. This feature more than doubles their durability.

Price per set, \$0.30.

## Adjustable Protection and Exhaust Hoods

Meets Every Requirement of "Safety First"

From the "Code"

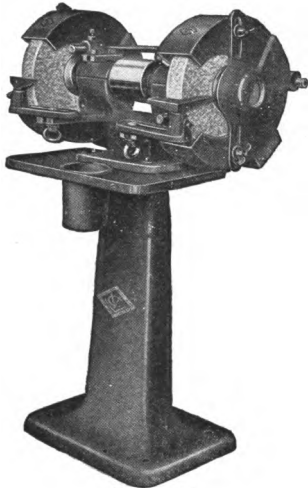


Fig. 544

"Protection hoods shall always be used where practical. Hoods shall be designed and constructed of a material sufficiently strong to retain all pieces of broken grinding wheel."

"Hoods shall conform as nearly as possible to the periphery of the wheel, and shall be so designed as to leave exposed the least portion of the wheel compatible with the work, and shall be of the adjustable type, . . . for the purpose of closing the opening in the hood as the wheel is reduced in diameter."

"Protection hoods must be securely fastened to the grinding machine or floor."

"Protruding ends of the wheel arbors and nuts shall be guarded."

The Adjustable Protection and Exhaust Hood shown above complies with the specifications above. The whole hood is adjustable.

The end of the arbor is guarded.

Fully seventy-five per cent of the wheel is covered.

Exhaust connection is provided.

These hoods are attached to the cap of the bearings by special brackets. Easily attached. Easily adjusted.

Specify if for right or left wheel when facing machine.

Furnished with exhaust connection, unless otherwise specified.

No.	Size	Cast Iron	Malleable Iron	Crucible Steel
6	6 x 1½ in. each	\$4.25	\$4.60	\$7.50
8	8 x 1½ in. "	4.60	5.60	8.35
10	10 x 2 in. "	7.25	8.60	11.50
12	12 x 2½ in. "	8.35	10.25	14.25
14	14 x 3 in. "	10.85	13.25	15.25
16	16 x 3 in. "	14.25	17.50	21.50
20	20 x 4 in. "	19.80	23.10	28.00
24	24 x 4 in. "	33.00	36.25	44.50

## Sundries

Aluminum	Hydrofluoric Acid
Arsenic	Hinge Tubes
Annealed Core Wire	Limestone
Annealing Charcoal	Linseed Oil
Aluminum Flux	Lycopodium
Antimony	Litharge
Asbestos	Lake Sand
Block Tin	Lime
Beeswax	Lead
Bayberry Wax	Mica
Borax	Manganese Copper
Brass Flux	Manganese Bronze
Black Oxide Manganese	Magnesium
Bauxite	Oil of Vitriol
Core Flour	Portland Cement
Core Sand	Plaster Paris
Caustic Soda	Shellac Varnish
Cutters for Emery Wheels	Parting Sand Riddles
Core Coating	
Chill Coating	Pumice Stone
Carborundum Sand	Phosphorizers
Crucible Preserver	Phosphor Copper
Crucible Paint	Phosphorus
Chloride Zinc	Parting Compounds
Core Compounds	Quartz
Dextrine	Sledge Hammers
Dolomite	Shellac
Deoxidizers	Sulphur
Emery Wheel Dressers	Stove Putty
French Molding Sand	Silica Sand
Fire Sand	Stove Cement
Furnaces, Crucible	Grinding Machines
Furnaces, Non-Crucible	Stove Specialties
Ferro Silicon	Silicon Copper
Ferro Manganese	Sal Ammoniac
Ground Silica	Tripoli
Ganister	White Sand
Hay Rope	Zinc
Aluminum Solder	Glue
Bismuth	Kaolin
Brass	Nickel
Bronze	Refractories
Babbitt	Spelter
Brazing Solder	Soapstone
Copper	Talc
Fluor Spar	Manganese Oxide
Graphite	

## Leather Fillet

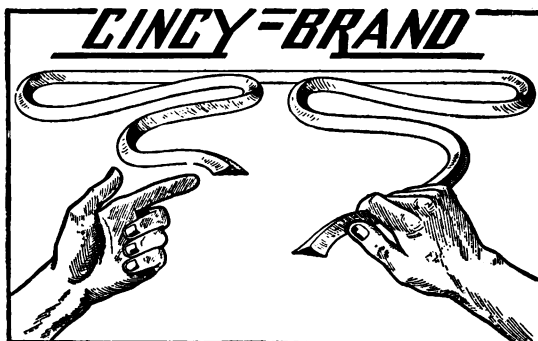


Fig. 545

Our Cincy Brand Leather Fillet is made on scientific principles. Has two curved sides and one flat face, with accurately-cut edges. Is economical in the extreme, and is much cheaper than to build patterns solid and work the corners with gauges and chisels. When applied to pattern the two curved sides become straight and the flat face becomes curved.

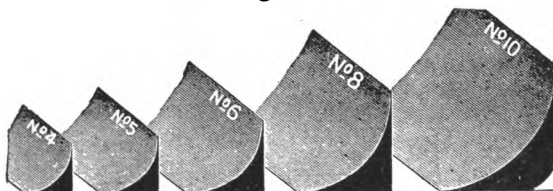


Fig. 546

### DIMENSIONS AND LIST PRICE PER HUNDRED FEET

Order by Number	Angle Meas., Inches	Width of Face (Flat), Inches	Price
No. 1	1/16	3/32	\$2.00
No. 2	1/8	3/16	2.00
No. 3	3/16	5/16	3.00
No. 4	1/4	3/8	4.00
No. 5	5/16	1/2	5.00
No. 6	3/8	9/16	6.00
No. 8	1/2	3/4	8.00
No. 10	5/8	31/32	10.00
No. 12	3/4	1 5/32	12.00
No. 14	7/8	1 1/2	14.00
No. 16	1	1 9/16	16.00

### DIRECTIONS How to Apply

Apply ordinary glue to curved sides only, then place it on the pattern where required, after which press to position with a fillet tool of proper size, and remove surplus glue with damp cloth or sponge. In applying the larger sizes, dip in hot water for an instant before applying the glue.

Do not use nails or tacks, as they may draw the fillet out of place and render an uneven surface. For metal patterns, use shellac instead of glue.

## Stove Specialties

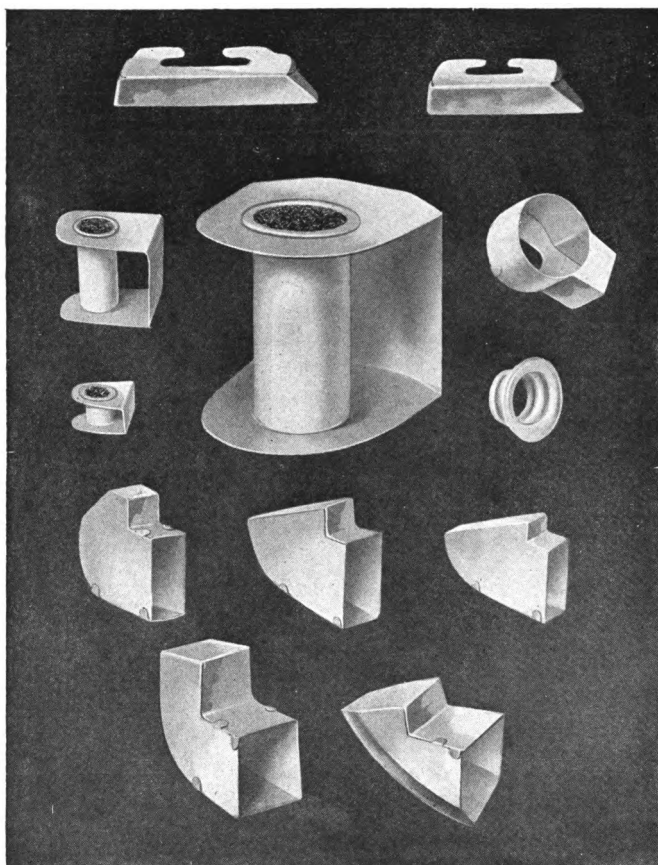


Fig. 547

We can furnish all kinds and sizes of stove specialties, such as dove-tails, hinge tubes (round and oval), swing cover-catch, damper screw shell, stove-door catches (round and oval), cover-lip, grate-hooks, etc.

Prices on application.

When requesting prices, give full information as to dimensions, sending sample if possible.

## DRAW SCREW

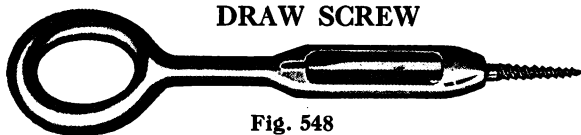


Fig. 548

Will lift your heaviest pattern without slipping. Wood-screw can be replaced very readily.

Price, per dozen	\$4.00
Screws, per dozen	.10

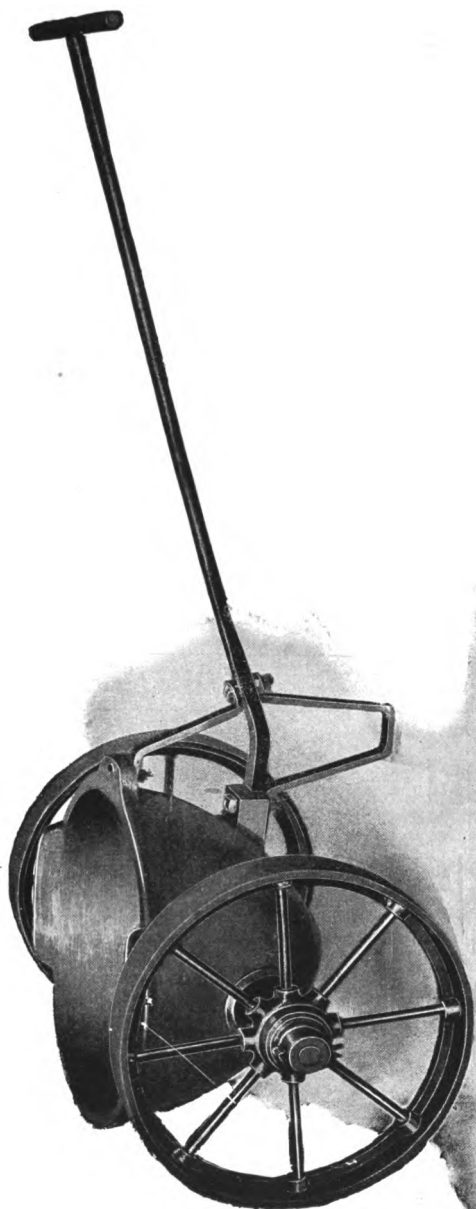


Fig. 549

Style No. 548

# **Slag Pot for Smelters** **With Anti-friction Roller-bearing**

No.	Capacity	Weight	Price
8	2 cu. ft.	475 lbs.	\$65.00
9	4 " "	600 "	120.00



## Pressed Steel Melting Ladle

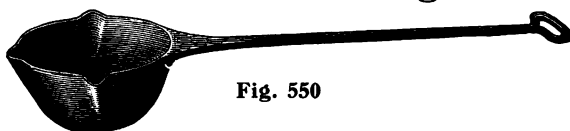


Fig. 550

These pressed steel ladles are extra deep, thick, and have extra long welded handle. Can be furnished without lip, with one right or left-hand lip, or with three lips.

Any length handle can be furnished at additional price.

Diam. of Bowl	Depth of Bowl	Capacity	Thickness of Bowl	Length of Handle	Price Each
2½ in.	13/16 in.	1 lb.	⅛ in.	17½ in.	\$0.50
3 in.	1½ in.	2 lb.	⅛ in.	17½ in.	.70
4 in.	2 in.	5 lb.	⅛ in.	19½ in.	.90
5 in.	2½ in.	11 lbs.	⅛ in.	23 in.	1.25
6 in.	3¼ in.	23 lb.	3/16 in.	29 in.	2.35
7 in.	3⅝ in.	35 lbs.	3/16 in.	30 in.	2.85
8 in.	4 in.	59 lbs.	¼ in.	33 in.	3.50

## PRESSED STEEL SKIMMING LADLE



Fig. 551

Diam. of Bowl	Depth of Bowl	Thickness of Bowl	Length of Handle	Price Each
2½ inches	¾ inch	⅛ inch	17½ inches	\$1.20
3 inches	1 inch	⅛ inch	17½ inches	1.35
4 inches	1¼ inches	⅛ inch	19½ inches	1.60
5 inches	1½ inches	⅛ inch	23 inches	1.95
6 inches	2 inches	3/16 inch	29 inches	3.00
7 inches	2¼ inches	3/16 inch	30 inches	3.60
8 inches	2½ inches	¼ inch	33 inches	4.25
9 inches	3 inches	¼ inch	35 inches	5.40
10 inches	3¼ inches	¼ inch	40 inches	6.35

Pressed steel bowl, with riveted handle, part wood, as shown, or can be furnished all steel handle.

## PRESSED STEEL POURING KETTLE

Pressed steel pouring kettle has broad self-skimming covered spout, rigid bail, and bent handle.

8" Diam., 5" deep, Cap. 50 to 75 lbs,  
Each..... \$5.50  
10" Diam., 5" deep, Cap. 75 to 100 lbs,  
Each..... 7.30

Other styles and sizes. If interested, write us for further information.



Fig. 552

### STAMPED STEEL LADLE BOWLS

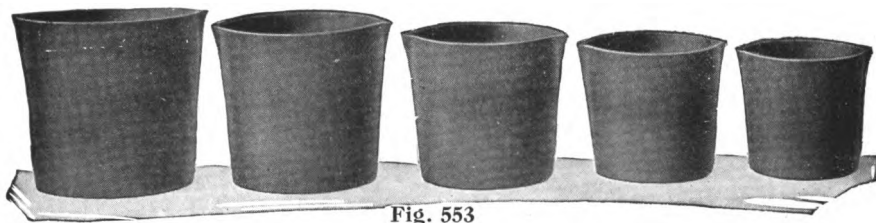


Fig. 553

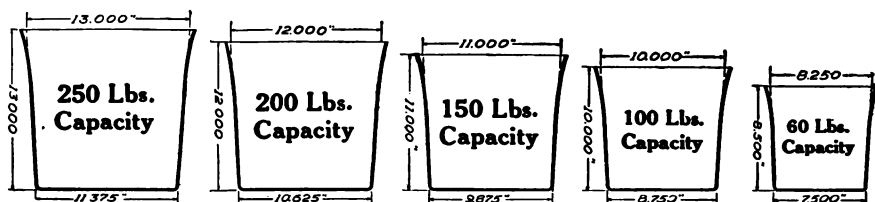


Fig. 554

**No Joints. No Rivets. No Welds.**

Our Stamped Steel Ladle Bowl is made of one piece of heavy steel, and the best possible construction. Will far outlast any other make of ladle bowl. Made only in capacities from 60 to 250 pounds.

Made in the following gauges of steel:

Capacities.....	250	200	150	100	60
Gauges.....	5/32"	1/8"	1/8"	1/8"	14 Ga.
Price.....	\$7.15	\$6.00	\$5.00	\$4.25	\$2.50

### PRESSED STEEL LADLE BOWL

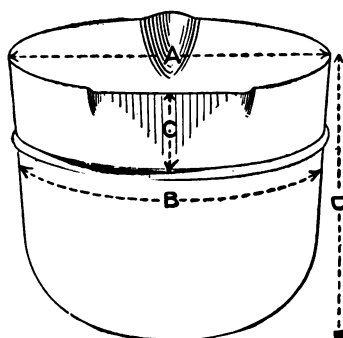


Fig. 555  
Light-Strong

		Dimensions	Capacity	Price
No. 7	A	8 3/4 inches		
	B	8 3/8 "		
	C	2 "		
	D	6 "	50 lbs.	\$1.00
No. 8	A	9 3/4 inches		
	B	9 1/2 "		
	C	2 "		
	D	6 1/4 "	65 lbs.	\$1.25
No. 9	A	10 3/4 inches		
	B	10 1/2 "		
	C	2 "		
	D	7 "	90 lbs.	\$1.50
No. 10	A	12 inches		
	B	11 19/32 inches		
	C	2 "		
	D	8 "	100 lbs.	\$2.00

## P. & O. Welded Ladle Bowls

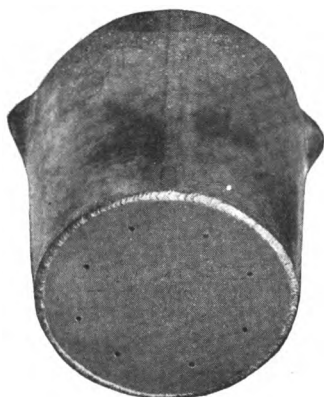


Fig. 556

### GREATER STRENGTH WITH LESS WEIGHT

Is obtained by welded construction of ladle bowls. "P. & O." Bowls are welded, and do away with all troubles which develop from riveted seams. Besides being much lighter than the old style rivet-seam bowls, "P. & O." Bowls are stronger and guaranteed not to warp or twist out of shape.

The special feature of this bowl is the perforated bottom, which allows the escape of steam when the lining clay is not entirely dry, thus eliminating spattering from steam passing through liquid iron. "P. & O." Bowls are built for capacities from 30 pounds to one ton.

Capacity in Lbs.	Inside Dimensions			Thickness		Weight	Price
	Top	Bottom	Depth	Bottom	Sides		
30	7	6	6 $\frac{3}{4}$	14	14	4	\$1.80
50	8	7	7 $\frac{3}{8}$	14	14	5	1.95
60	8 $\frac{3}{8}$	7 $\frac{3}{8}$	8 $\frac{1}{4}$	14	14	6	2.10
75	9	8	9	12	14	8	2.70
100	10	9	10	10	12	11	3.30
150	11 $\frac{1}{4}$	10	10 $\frac{1}{2}$	10	12	14	4.05
200	12	11	11 $\frac{1}{2}$	10	12	18	4.80
250	12 $\frac{3}{4}$	11 $\frac{1}{4}$	12 $\frac{1}{2}$	8	10	21	5.55
300	14	12 $\frac{1}{2}$	13	8	10	29	6.30
400	15 $\frac{1}{2}$	14	14 $\frac{1}{2}$	3/16	10	36	7.80
500	16 $\frac{1}{2}$	15	15 $\frac{1}{2}$	3/16	8	40	10.80
600	17 $\frac{1}{2}$	16	17	3/16	8	43	12.30
800	18 $\frac{1}{2}$	17	18	3/16	8	64	18.30
1,000	20 $\frac{1}{2}$	18 $\frac{1}{2}$	19 $\frac{1}{2}$	3/16	8	81	19.80
1,200	21 $\frac{1}{2}$	19 $\frac{1}{2}$	21	$\frac{1}{4}$	3/16	95	22.05
1,500	23	21	22 $\frac{1}{4}$	$\frac{1}{4}$	3/16	108	25.05
2,000	25 $\frac{1}{2}$	23 $\frac{1}{2}$	24 $\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	153	33.30

## Cast Steel Band Shank



Fig. 557

This Shank has a cast steel band; the bars or handles fit into the band casting perfectly. Are held in place with a heavy rivet.

This is an entirely new construction in shanks, and one that will give a great deal more service than the forged shank.

These shanks are made especially for our Stamped Steel Ladle Bowl, and only in capacities of from 60 to 250 pounds.

Can be furnished in single, double, or swivel handle.

**Prices on application.**

## LEAD AND BABBITT KETTLES



Fig. 558

### WITH OR WITHOUT BAIL

#### Cast Iron

For a neat, perfectly-balanced, smooth-finished kettle, there are none on the market to compare with these.

Kind	Size	Weight Each	With Bail, Each	Without Bail, Each
No. 16	16 Gal.	50 lbs.	\$5.25	\$4.75
No. 20	20 "	69 "	6.25	5.75
No. 25	25 "	87 "	7.50	7.00
No. 30	30 "	115 "	9.00	8.50

Sent with bail, unless otherwise distinctly stated.

# HAND LADLE SHANKS

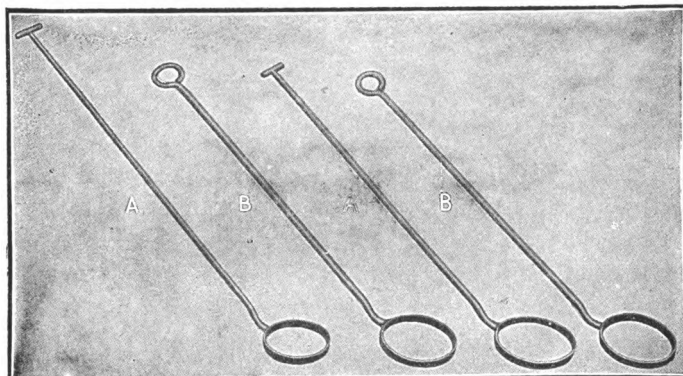


Fig. 559

Style No. 20

Hollow Handles

Ring Handle Shank furnished unless otherwise specified. T-Handle Shank furnished when desired. Advise which style is desired. If dimensions of ladle ring cannot be furnished, advise outside dimensions of ladle, giving height and diameter of top and bottom.

Description .....	Ring Handle 65 or less	Ring Handle 70 or over	T Handle 65 or less	T Handle 70 or over
Capacity in pounds.....				
Price per dozen.....	\$14.00	\$16.80	\$15.40	\$18.90

## HAND LADLES, COMPLETE WITH SHANKS Hollow Handles

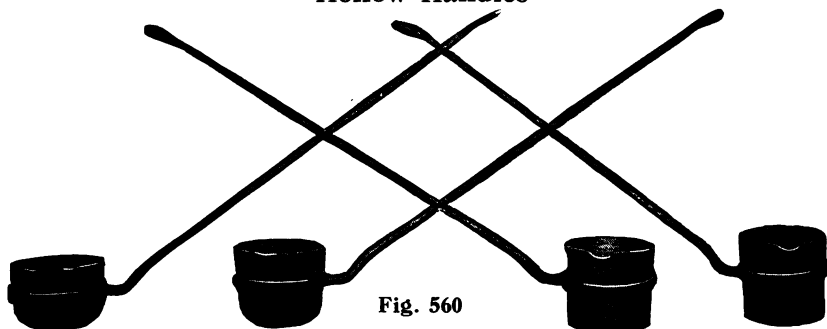


Fig. 560

Fig.  
Style No. 116

Fig.  
Style No. 118

Fig.  
Style No. 120

Fig.  
Style No. 122

Styles 116, 118, 120, 122, made in same sizes as Nos. 108, 110, 112, and 114½. Ring Handle Shanks, as shown above, furnished when not otherwise specified. T-Handle Shanks furnished when desired.

Style No.	116				118				120				122			
Capacity in Pounds	50	65	30	40	50	60	30	40	50	60	30	40	50	60	70	
Price.....	\$3.00	4.25	2.50	2.55	2.80	3.10	2.50	2.55	2.80	3.10	3.90	4.00	4.20	4.50	5.25	

# THE BUCKEYE PRODUCTS COMPANY

## LADLE BOWLS

**Style No. 108**  
**Round Bottom,**  
**Stamped Steel.**



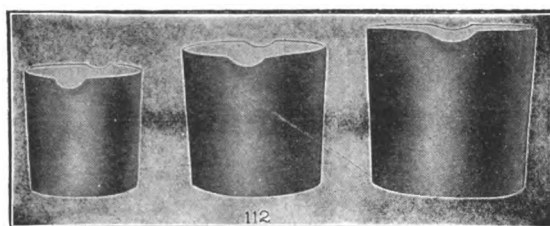
**Fig. 561**  
**Style No. 108**



**Fig. 562**  
**Style No. 110**

**Style No. 110**  
**Round Bottom,**  
**Cast Bowl.**

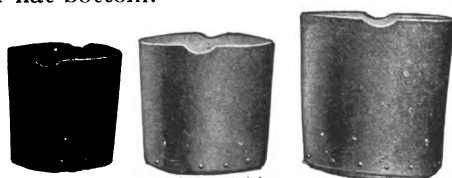
Style No. ....	108				110			
	Round Bot.		Flat Bot.					
Capacity in Pounds	50	65	100	150	30	40	50	60
Price .....	\$1.00	\$1.25	\$1.50	\$1.70	\$0.80	\$0.85	\$1.00	\$1.20



**Fig. 563**

**Style No. 112—Flat Bottom Cast**

Round Bottom Cast Bowls can be furnished if desired at slight additional cost over flat bottom.



**Fig. 564**

**Style No. 114**

Flat Bottom Welded Steel Bowls. These Bowls are provided with two forged lips and vent holes.

Style No.	112 Flat Bottom Cast Bowl											
Capacity Pounds	30	40	50	60	100	150	200	250	300	350	400	500
Price ....	\$0.80	\$0.85	\$1.00	\$1.20	\$2.00	\$2.50	\$3.00	\$3.75	\$4.75	\$6.00	\$7.50	\$9.00

Style No.	114 Welded Bowl											
Capacity in Pounds	30	40	50	60	70	80	100	150	200	250	300	350
Price .....	\$2.10	\$2.20	\$2.40	\$2.70	\$3.00	\$3.40	\$4.00	\$4.75	\$5.55	\$6.40	\$7.35	\$8.40

# THE BUCKEYE PRODUCTS COMPANY

## SINGLE BULL LADLE SHANKS



Fig. 565  
Style No. 30

### One End of Shank Straight

Capacity in lbs.	80	100	150	200	250	300	350	400	450	500	600	800	1,000
Price . . .	\$4.10	\$4.10	\$4.40	\$4.85	\$5.25	\$5.60	\$6.10	\$6.50	\$7.25	\$7.95	\$9.45	11.15	12.95

## DOUBLE BULL LADLE SHANKS



Fig. 566  
Style No. 40

### Both Ends of Shank Double

Capacity in lbs.	80	100	150	200	250	300	350	400	450	500	600	800	1,000
Price . . .	\$5.10	\$5.10	\$5.45	\$5.85	\$6.30	\$6.65	\$7.35	\$7.70	\$8.25	\$8.95	10.50	12.25	14.00

## DOUBLE BULL LADLE SHANKS, SWIVELED



Fig. 567  
Style No. 50

### One End of Shank Swivel

Capacity in lbs.	80	100	150	200	250	300	350	400	450	500	600	800	1,000
Price . . .	\$6.14	\$6.14	\$6.40	\$6.95	\$7.35	\$7.70	\$8.20	\$8.75	\$9.30	10.00	11.55	13.30	14.35

FLAT BOTTOM, STEEL BOWLS, BULL LADLE, COMPLETE  
WITH SHANK

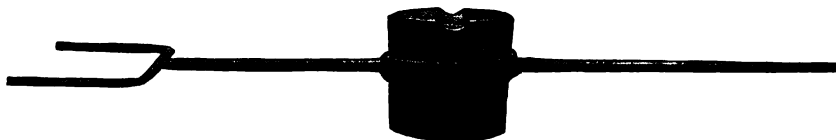


Fig. 568  
Style No. 126

One End of Shank Straight

Capacity in Pounds.....	80	100	150	200	250	300	350	400	500	600	800	1,000
Price.....	\$6.30	\$6.30	\$7.00	\$7.70	\$8.40	\$9.10	\$9.80	10.50	11.90	13.30	16.10	18.90

FLAT BOTTOM, STEEL BOWLS, BULL LADLE, COMPLETE  
WITH SHANK



Fig. 569  
Style 126-D

Both Ends of Shank Double

Capacity in Pounds.....	80	100	150	200	250	300	350	400	500	600	800	1,000
Price.....	\$7.35	\$7.35	\$8.05	\$8.75	\$9.45	10.15	10.85	11.55	12.95	14.35	17.15	19.95

FLAT BOTTOM, STEEL BOWLS, BULL LADLE, COMPLETE  
WITH SHANK



Fig. 570  
Style No. 126-S

One End of Shank Swivel

Capacity in Pounds.....	80	100	150	200	250	300	350	400	500	600	800	1,000
Price.....	\$8.40	\$8.40	\$9.10	\$9.80	10.50	11.20	11.90	12.60	14.00	15.40	18.20	21.00



## Riveted Steel Bowls



Fig. 571  
Style No. 136



Fig. 572  
Style No. 137



Fig. 573  
Style No. 138



Fig. 574  
Style No. 139

**No. 136 Bowl.**—No. 1 High Riveted Lips.

**No. 137 Bowl.**—No. 2 Low Forged Lips.

**No. 138 Bowl.**—No. 3 Low Riveted Lips.

**No. 139 Bowl.**—No. 4 Teakettle Spout or Bottom Pouring Lips.

NOTE.—No. 136 Standard Bowl with No. 1 Lips in stock, and will be shipped unless otherwise ordered.

Capacity in Pounds	Price	Capacity in Pounds	Price	Capacity in Pounds	Price
400	\$9.50	3,000	\$34.00	14,000	\$136.00
500	10.00	3,500	39.00	16,000	153.00
600	11.00	4,000	44.00	18,000	170.00
700	12.00	4,500	51.00	20,000	195.50
800	13.50	5,000	59.50	24,000	221.00
1,000	15.00	6,000	68.00	26,000	255.00
1,200	17.00	7,000	80.00	30,000	297.50
1,500	19.50	8,000	93.50	32,000	340.00
2,000	24.00	10,000	105.00	34,000	391.00
2,500	29.00	12,000	119.00	36,000	442.00

For dimensions, see page 270.

575

### LADLE BAILS No. 4

Capacity in Pounds	Price	Capacity in Pounds	Price
400	\$1.75	1,200	\$4.62
500	1.95	1,500	5.78
600	2.24	1,800	7.70
700	2.50	2,000	8.70
800	2.80	2,500	10.10
1,000	3.50	3,000	11.55

No. 4 Bails usually in stock, will be furnished on orders; other styles of Bails made to order.

CRANE LADLES WITH SHANK AND BAIL

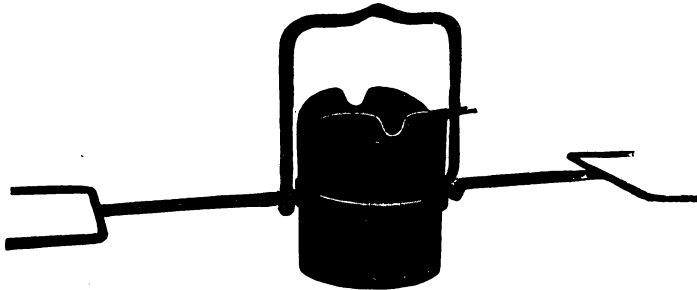


Fig. 576

No. 1 Lips

Style No. 128

No. 4 Bail

Capacity in Pounds...	400	500	600	700	800	1,000	1,200	1,500	1,800
Price.....	\$22.50	\$24.00	\$25.50	\$27.00	\$29.00	\$32.50	\$37.00	\$43.00	\$49.00

CRANE LADLES WITH SHANK, BAIL AND BASKET

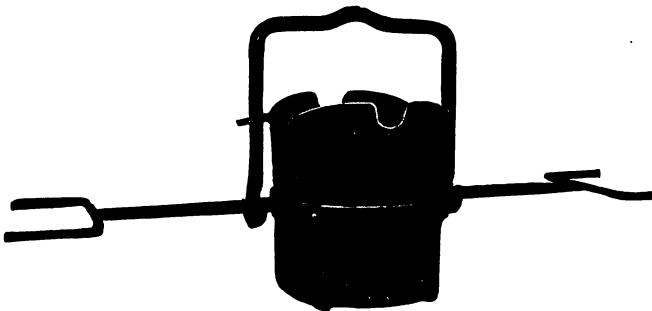


Fig. 577

No. 1 Lips

Style No. 132

No. 4 Bail

Capacity in Pounds.....	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000
Price.....	\$55.00	\$62.00	\$70.50	\$78.00	\$88.00	\$93.00	\$98.50	\$113.00

Do you need special Ladle Equipment?  
Send sketch when writing.

**GEARED CRANE LADLES**  
Style "A" Gear

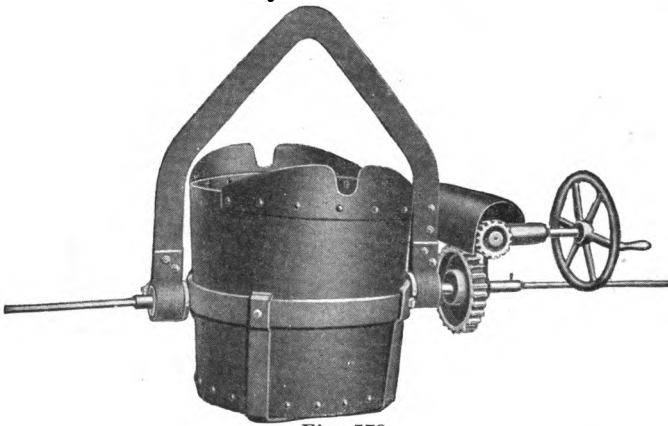


Fig. 578

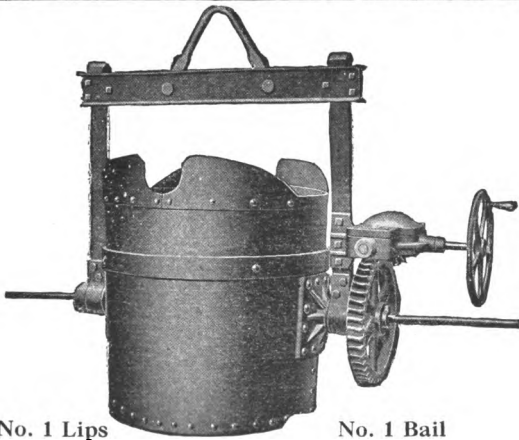
No. 1 Lips      Style No. 148½      No. 2 Bail

This style Bail (No. 2), as shown, not furnished above 8,000 pounds' capacity.

For 10,000 pounds and larger, a strut Bail (No. 7), same as style No. 160-s is supplied.

Ladles less than 2,000 pounds' capacity are made without basket. Ladles 2,000 pounds' capacity and over are made with basket.

Capacity in Pounds .....	1,000	1,200	1,500	1,800	2,000	2,500	3,000	3,500	4,000	4,500
Price.....	\$68.00	\$78.00	\$88.50	\$93.00	\$98.50	109.00	121.00	134.00	149.50	166.50
Capacity in Pounds .....	5,000	6,000	7,000	8,000	10,000	12,000	14,000	16,000	18,000	20,000
Price.....	183.50	206.00	220.00	229.50	255.00	282.00	311.00	374.00	442.00	544.00



No. 1 Lips

No. 1 Bail

Fig. 579  
Style No. 150½

**GEARED CRANE LADLES**

Style "A" Gear

In sizes above 8,000 pounds' capacity, Bail is made with channel cross-bars, same as shown. Capacity and prices same as Style No. 148½.

GEARED CRANE LADLES

Style "A" Gear



Fig. 580

No. 3 Lips      Style No. 161½      No. 1 Bail  
Capacity and prices same as Style No. 161-B

GEARED CRANE LADLES

Style "A" Gear

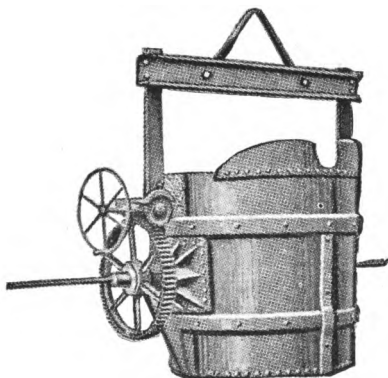


Fig. 581

No. 1 Lips      Style No. 161-B      No. 1 Bail

Capacity in Pounds . . . . .	20,000	24,000	26,000	30,000	32,000	34,000	36,000
Price . . . . .	\$600.00	\$714.00	\$785.00	\$857.00	\$928.00	\$999.00	\$1071.00

**GEARED CRANE LADLES**  
**Style "B" Gear**



**Fig. 582**

**No. 1 Lips**

**Style No. 154**

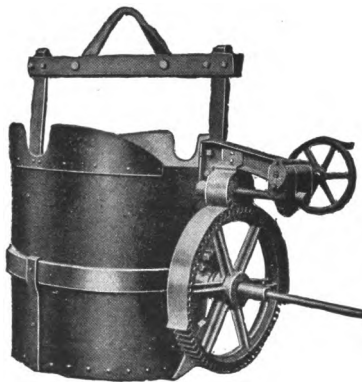
**No. 1 Bail**

In sizes above 8,000 pounds' capacity, Bail is made with channel crossbars, same as shown in illustration, Style No. 161½.

Ladles less than 2,000 pounds' capacity are made without basket. See Style No. 128. Ladles 2,000 pounds' capacity and over are made with basket.

**Capacity and Prices same as Style No. 148½.**

**GEARED CRANE LADLES**  
**Style "D" Gear**



**Fig. 583**

**No. 1 Lips**

**Style No. 160**

**No. 1 Bail**

In sizes above 8,000 pounds' capacity, Bail is made with channel crossbars, same as shown in Style No. 161½.

**Capacity and Prices same as Style No. 148½.**

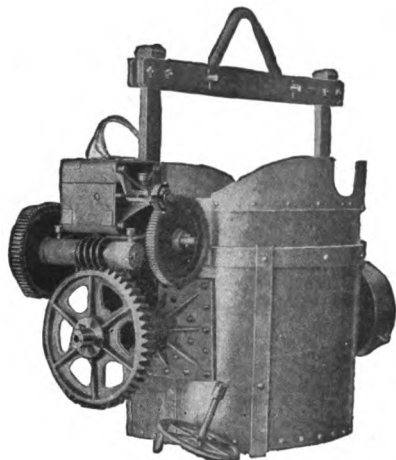
**GEARED CRANE LADLES**  
**Style "D" Gear**



**Fig. 584**

**No. 1 Lips      Style No. 160-S      No. 7 Bail**  
**Capacity and Prices same as Style No. 148½.**

The above cut represents the Pin Gear Ladles.

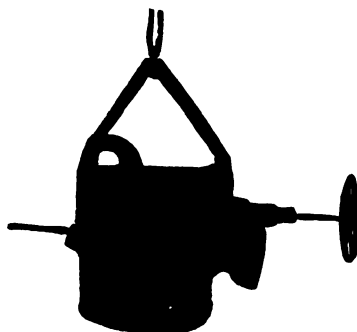


**Fig. 585**  
**Style No. 180**

**Style No. 180**  
**ELECTRIC DRIVEN GEARED**  
**CRANE LADLES**

(Gear Case not shown.)

**Style No. 252**  
**GEARED CRANE LADLES**  
**Enclosed Gear "D" Lip**



**Fig. 586**  
**Style No. 252**

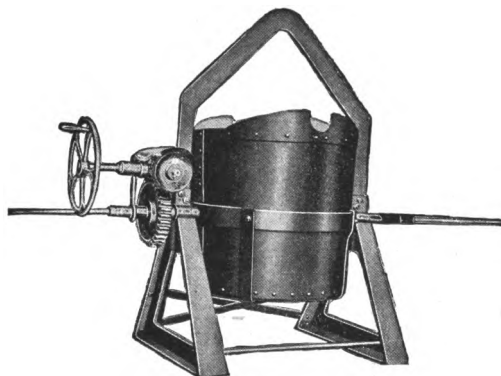
**INTERCHANGEABLE CRANE AND RESERVOIR LADLES,  
GEARED**

**Style "A" Gear**

In ordering, give height under cupola spout from foundation. These ladles may be lifted free from standards and poured by gear while suspended from crane. Interchangeable with Styles 145 and 146-E, when so ordered.

Ladles less than 2,000 pounds' capacity are made without basket. See Style No. 128.

Ladles 2,000 pounds' capacity and over are made with basket.



**Fig. 587**

**No. 1 Lips**

**Style No. 167**

**No. 2 Bail**

Capacity in Pounds.....	1,000	1,200	1,500	1,800	2,000	2,500	3,000
Price.....	\$95.00	\$104.00	\$112.00	\$117.25	\$122.50	\$136.00	\$153.00
Capacity in Pounds.....	3,500	4,000	4,500	5,000	6,000	8,000	10,000
Price.....	\$165.75	\$178.50	\$191.25	\$204.00	\$238.00	\$265.00	\$325.00

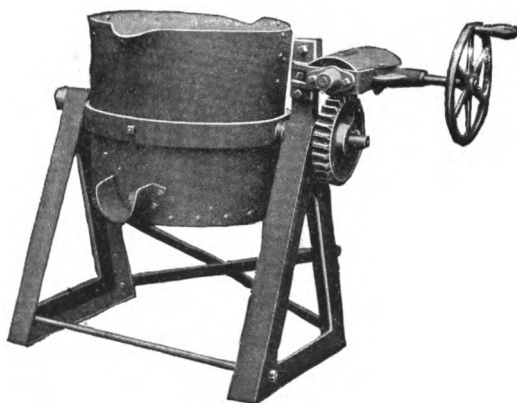
**PRECAUTION.**—Kindly let us suggest that when you purchase Shanks or Crane Ladles, test the same with pig iron before putting in service.

**NOTE.**—These ladles are made to hang straight when lined and in use.

They will incline to the gear side when empty. This not being objectionable, we have discontinued the use of gear-balance weight.

Weights are only furnished when ordered. Price extra.

**RESERVOIR LADLES, GEARED  
Style "A" Gear**



**Fig. 588**

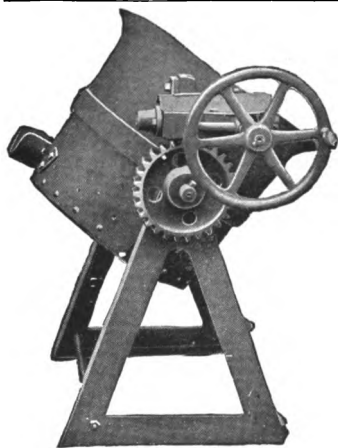
**No. 2 Lips                      Style No. 166  
Furnished With or Without Side Tap.**

In ordering, give height under cupola spout from foundation. Ladles less than 2,000 pounds' capacity are made without basket.

Ladles 2,000 pounds' capacity and over are made with basket.

Capacity in Pounds .....	600	800	1,000	1,200	1,500	1,800	2,000	2,500
Price .....	\$64.50	73.00	81.50	90.00	99.00	105.00	110.50	122.50
Capacity in Pounds .....	3,000	3,500	4,000	4,500	5,000	6,000	8,000	10,000
Price .....	\$136.00	150.00	163.00	177.00	190.00	221.00	250.00	300.00

**RESERVOIR LADLES, GEARED  
Style "A" Gear**



**Fig. 589**

**Style No. 166½**

When used in this manner as a Skim Ladle, capacity is reduced one half. In ordering give height under cupola spout from foundation.

Ladles less than 2,000 pounds' capacity are made without basket.

Ladles 2,000 pounds' capacity and over are made with basket.

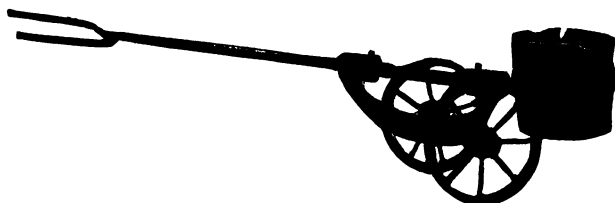
**Capacity and Price same as Style No. 166.**

**No. 2 Lips**

**Page 261**



**BULL SULKY LADLES, WITH STEEL BOWL**



**Fig. 590**

**Style No. 126½**

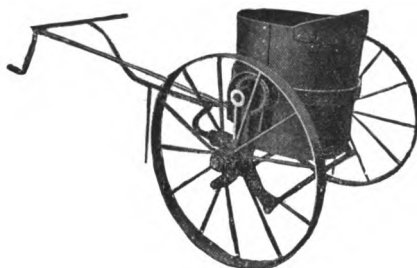
Wheels 16 to 24 inches in diameter. Counterbalance furnished on 400 pounds' capacity and larger.

Capacity in Pounds.....	100	150	200	250	300	350	400	450	500	600
Price.....	\$25.00	\$25.00	\$27.00	\$27.00	\$30.00	\$35.00	\$44.00	\$49.50	\$55.00	\$67.00

**GEARED SULKY LADLES**

**Style "A" Gear**

**Wheels 24 and 30 inches in Diameter**



**Fig. 591**

**No. 1 Lip**

**Style No. 146**

**Two Flat-tread Wheels**

Capacity in Pounds.....	500	600	700	800	1,000	1,200	1,500
Price.....	\$74.00	\$79.00	\$84.00	\$88.00	\$92.00	\$96.00	\$103.00

# THE BUCKEYE PRODUCTS COMPANY

## TROLLEY LADLES WITH SHANK AND BAIL

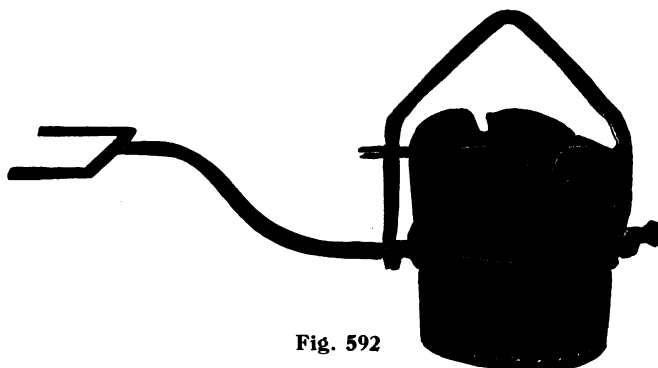


Fig. 592

	No. 1 Lips			Style No. 127½				No. 5 Ball			
Capacity in Pounds.....	300	400	500	600	700	800	1,000	1,200	1,500	1,800	
Price.....	\$21.00	\$23.00	\$24.50	\$26.00	\$28.50	\$30.50	\$34.00	\$39.00	\$46.00	\$52.00	

## GEARED BUGGY LADLES

### Style "A" Gear

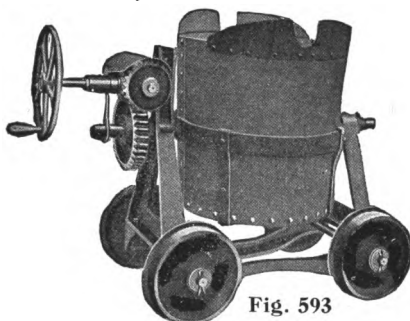


Fig. 593

No. 1 Lips      Style No. 144      4 Flange Wheels

At slight additional cost, the Buggy Ladles can be supplied with Swivel Wheels. They will go around curves down to ten feet radius, without scrubbing or bending.

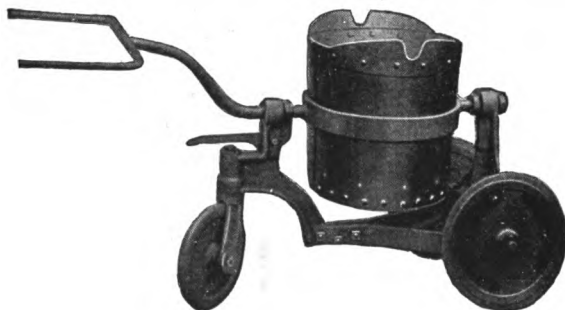
In ordering, give gauge of track and minimum height above track.

Ladles less than 2,000 pounds' capacity are made without basket.

Ladles 2,000 pounds' capacity and over are made with basket.

Capacity in Pounds.....	1,000	1,200	1,500	1,800	2,000	2,500	3,000
Price.....	\$97.00	\$105.00	\$114.00	\$119.00	\$124.00	\$138.00	\$153.00
Capacity in Pounds.....	3,500	4,000	5,000	6,000	7,000	8,000	
Price.....	\$168.00	\$183.50	\$213.50	\$243.50	\$273.50	\$303.70	

**DIRIGIBLE BUGGY LADLES, NOT GEARED**



**Fig. 594**

**No. 1 Lips**

**Style No. 143**

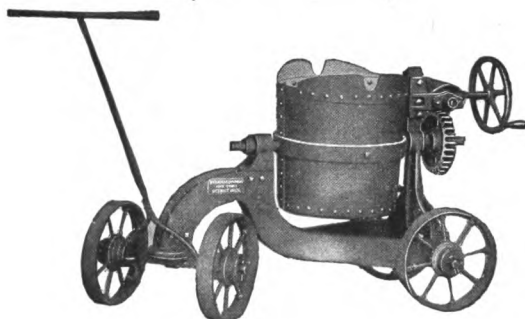
**3 V-Tread Wheels**

These ladles are easily handled on concrete or iron floors, and can also be lifted free from the buggy by crane bail.

Capacity in Pounds .....	500	600	700	800	1,000
Price .....	\$73.00	\$74.00	\$75.00	\$77.00	\$80.00

**DIRIGIBLE BUGGY LADLES, GEARED**

**Style "A" Gear**



**Fig. 595**

**No. 1 Lips**

**Style No. 141**

**4 Flat-tread Wheels**

Ladles less than 2,000 pounds' capacity are made without basket.

Ladles 2,000 pounds' capacity and over are made with basket. See cut style No. 132.

Capacity in Pounds.....	800	1,000	1,200	1,500	1,800	2,000
Price.....	\$130.00	\$140.00	\$150.00	\$165.00	\$180.00	\$195.00

**BUGGY LADLES, NOT GEARED, DOUBLE END SHANK**  
 These Ladles may be lifted free from Buggy by use of Crane Bail



Fig. 596

No. 1 Lips      Style No. 142      4 Flanged Wheels

Ladles less than 2,000 pounds' capacity are made without basket.  
 Ladles 2,000 pounds' capacity and over are made with basket.

Capacity in Pounds..	1,000	1,200	1,500	1,800	2,000	2,500	3,000	3,500	4,000
Price.....	\$82.00	\$84.00	\$87.00	\$90.00	\$92.00	\$97.00	102.00	107.00	112.00

**BUGGY LADLES, NOT GEARED, SINGLE END SHANK**  
 These Ladles may be lifted free from Buggy by use of Crane Bail

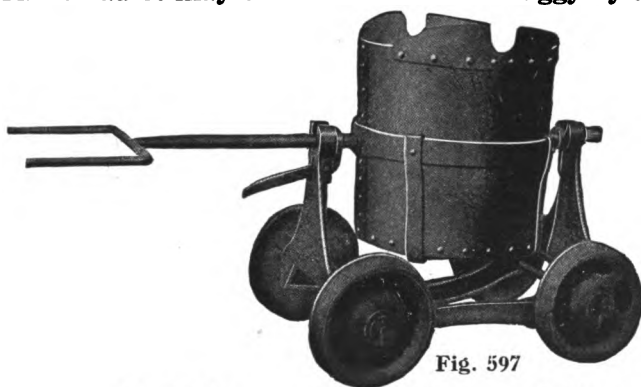


Fig. 597

No. 1 Lips      Style No. 142½      4 Flanged Wheels

In ordering, give gauge of track and minimum height above track.  
 Ladles less than 2,000 pounds' capacity are made without basket.  
 See Style No. 128. Ladles 2,000 pounds' capacity and over are made with basket.

Capacity in Pounds.	800	1,000	1,200	1,500	1,800	2,000	2,500	3,000	3,500	4,000
Price.....	\$80.00	81.00	82.00	85.00	87.00	90.00	95.00	100.00	105.00	110.00

INTERCHANGEABLE CRANE AND BUGGY LADLES,  
GEARED

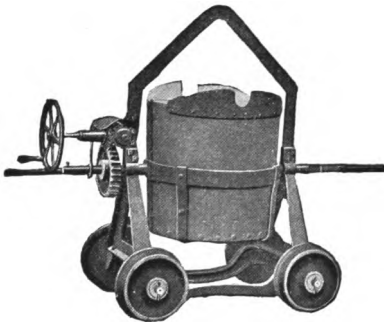


Fig. 598

Style No. 145

No. 1 Lips.

No. 2 Bail

Style "A" Gear

These Ladles may be lifted free from Truck and poured by Gear while suspended from crane. Can be made interchangeable with Styles Nos. 145-E or 167, when so ordered.

In ordering, give gauge of track and minimum height above track. Ladles less than 2,000 pounds' capacity are made without basket. See Style No. 128. Ladles 2,000 pounds' capacity and over are made with basket.

Capacity in Pounds.....	1,000	1,200	1,500	1,800	2,000	2,500	3,000
Price.....	\$113.00	\$116.00	\$121.00	\$125.00	\$129.00	\$143.00	\$158.00
Capacity in Pounds.....	3,500	4,000	4,500	5,000	6,000	7,000	8,000
Price.....	\$175.00	\$195.50	\$216.00	\$238.00	\$263.50	\$288.00	\$314.00

INTERCHANGEABLE  
CRANE AND BUGGY  
LADLES, END POURING

Style "A" Gear

These Ladles may be lifted free from Truck and poured by gear while suspended from crane. Interchangeable with Styles No. 145 or No. 167, as ordered. In ordering, give gauge of track and minimum height above track.



Fig. 599

No. 2 Lips.

Style No. 145-E.

No. 2 Bail

Capacity in Pounds.....	1,000	1,200	1,500	1,800	2,000	2,500	3,000
Price.....	\$121.00	\$125.00	\$132.00	\$138.00	\$142.00	\$157.50	\$174.00
Capacity in Pounds.....	3,500	4,000	4,500	5,000	6,000	7,000	8,000
Price.....	\$192.50	\$215.00	\$237.50	\$261.00	\$290.00	\$318.00	\$346.00

Car Wheel Pouring Ladles

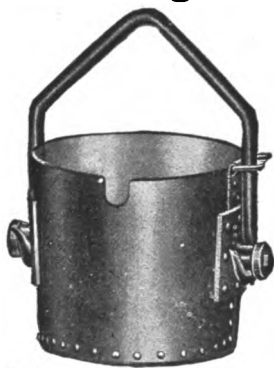


Fig. 600

	No. 4 Lips	Style No. 135	No. 5 Bail	Price
Capacity in Lbs.				
300				\$21.00
400				23.00
500				24.50
600				26.00
700				28.50
800				30.50
1,000				34.00

DIRECT ACTING PIN GEAR LADLES  
Style "F" Gear



Fig. 601

	No. 1 Lips	Style No. 147	No. 3 Bail			
Capacity in Pounds	500	600	700	800	1,000	1,200
Price	\$47.00	\$49.00	\$52.00	\$55.00	\$62.00	\$70.00

# BOTTOM DISCHARGING CRANE LADLES

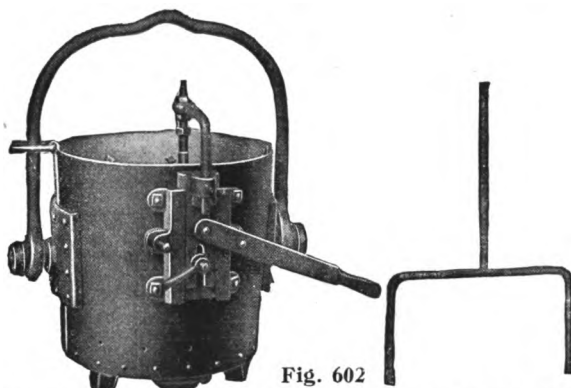


Fig. 602

No. 6 Bail, Style No. 162

Two Steady Handles

## Not Geared

Ladles of less than 2,000 pounds' capacity are made without basket.

Ladles 2,000 pounds' capacity and over are made with basket.

Stopper, Nozzle, and Sleeve not included; they are extra.

Capacity in Pounds	800	1,000	1,200	1,500	2,000	3,000	3,500	4,000	4,500	5,000
Price	\$65.00	66.50	72.00	80.00	93.50	112.00	118.00	124.00	131.00	138.00

# BOTTOM DISCHARGE CRANE LADLES, GEARED Style "A" Gear

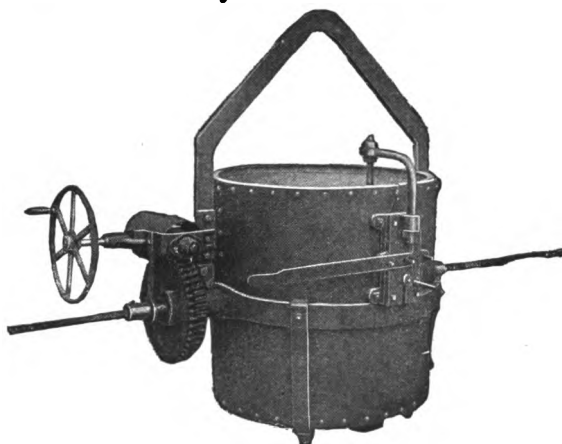


Fig. 603

No. 2 Bail

Style No. 164

No Lips

The above cuts illustrate the Bottom Pouring Ladles.

Stopper, Nozzle, and Sleeve not included; they are extra.

Capacity in Pounds	2,000	2,500	3,000	3,500	4,000	4,500	5,000	6,000
Price	\$132.50	\$145.30	\$158.10	\$171.00	\$183.50	\$196.25	\$209.00	\$234.50
Capacity in Pounds	8,000	10,000	12,000	14,000	16,000	18,000	20,000	
Price	\$285.50	\$340.00	\$391.00	\$442.00	\$493.00	\$544.00	\$595.00	

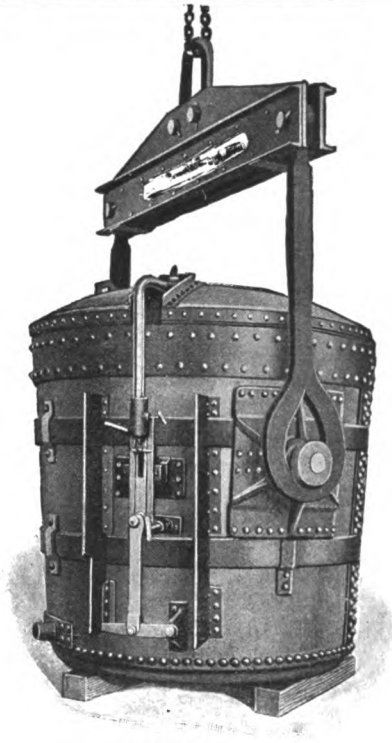


Fig. 604  
Style No. 558

### Twenty to Fifty-Ton Bottom-Pour Steel Ladles, with Adjustable Square Bail

#### CONSTRUCTION

The trimmings are O. H. steel castings.

The Bottom Shell and Manipulator are also of steel.

One bail may be used for two or more ladles.

### Bottom-Pouring Steel Foundry Ladles

For pouring Steel Castings, Ingots, etc. It pours from the bottom by raising lever at the side. The trunnions are O. H. steel castings, turned, making a true and substantial job. The bottom is made of O. H. steel. Can be made to tilt with gearing if required.

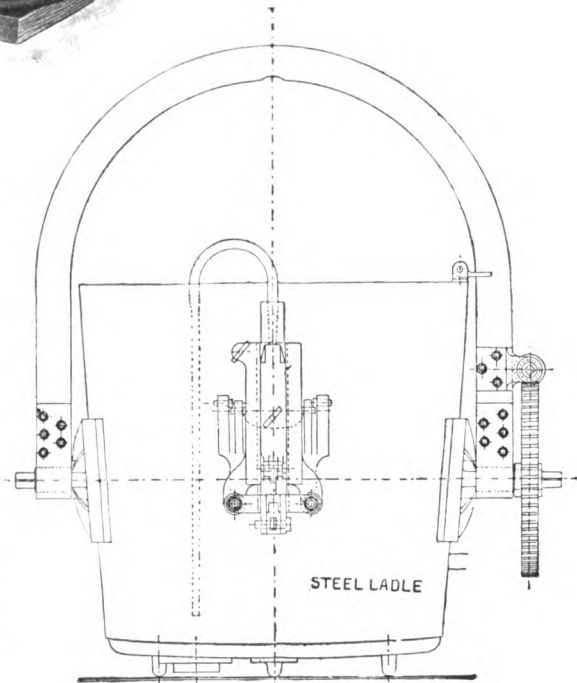


Fig. 605      Style No. 112



# THE BUCKEYE PRODUCTS COMPANY

## STANDARD CAPACITY AND SIZES OF STEEL LADLE

### BOWLS FOR CAST IRON

DIMENSIONS ARE INSIDE IN INCHES

Capacity in Pounds of Cast Iron	Top Diameter	Bottom Diameter	Depth	Daubing		Top Allowance Above Capacity
				Sides	Bottom	
25	6 $\frac{3}{4}$	5 $\frac{3}{4}$	6 $\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
30	7	6	6 $\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
40	7 $\frac{1}{2}$	6 $\frac{1}{2}$	6 $\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
50	8	7	7 $\frac{5}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
60	8 $\frac{3}{8}$	7 $\frac{3}{8}$	8 $\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
70	8 $\frac{3}{4}$	7 $\frac{3}{4}$	8 $\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
80	9 $\frac{1}{4}$	8	9	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
100	10	9	10	$\frac{1}{2}$	1	1 $\frac{1}{2}$
150	11 $\frac{1}{4}$	10	10 $\frac{1}{2}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$
200	12	11	11 $\frac{1}{2}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$
250	12 $\frac{3}{4}$	11 $\frac{1}{4}$	12 $\frac{1}{2}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$
300	14	12 $\frac{1}{2}$	13	$\frac{1}{2}$	1	1 $\frac{1}{2}$
350	14 $\frac{1}{2}$	13	13 $\frac{1}{2}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$
400	15 $\frac{1}{2}$	14	14 $\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$
500	16 $\frac{1}{2}$	15	15 $\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$
600	17 $\frac{1}{2}$	16	17	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$
700	18	16 $\frac{1}{2}$	17 $\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$
800	18 $\frac{1}{2}$	17	18	$\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$
1,000	20 $\frac{1}{2}$	18 $\frac{1}{2}$	19 $\frac{1}{2}$	1	1 $\frac{1}{2}$	2
1,200	21 $\frac{1}{2}$	19 $\frac{1}{2}$	21	1	1 $\frac{1}{2}$	2
1,500	23	21	22 $\frac{1}{4}$	1	1 $\frac{1}{2}$	2
2,000	25 $\frac{1}{2}$	23	24 $\frac{1}{2}$	1	1 $\frac{1}{2}$	2 $\frac{1}{2}$
2,500	27	25	26	1	1 $\frac{1}{2}$	2 $\frac{1}{2}$
3,000	28 $\frac{1}{2}$	26	27 $\frac{1}{2}$	1	1 $\frac{1}{2}$	2 $\frac{1}{2}$
3,500	30	27 $\frac{1}{2}$	29	1	1 $\frac{1}{2}$	2 $\frac{1}{2}$
4,000	31 $\frac{1}{2}$	28 $\frac{1}{2}$	30	1	1 $\frac{1}{2}$	3
4,500	33 $\frac{1}{2}$	30 $\frac{1}{2}$	32	1 $\frac{1}{2}$	2	3
5,000	34 $\frac{1}{2}$	31	33	1 $\frac{1}{2}$	2	3
6,000	36 $\frac{1}{2}$	33	35	1 $\frac{1}{2}$	2	3
8,000	40 $\frac{1}{2}$	36 $\frac{1}{2}$	38 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{2}$	3
10,000	43 $\frac{1}{2}$	39	41	1 $\frac{3}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$
12,000	45 $\frac{1}{2}$	41	43 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$
14,000	48	43	45 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$
16,000	54	49	50 $\frac{1}{2}$	4 $\frac{1}{2}$	5	3 $\frac{1}{2}$
18,000	56	50 $\frac{1}{2}$	54	4 $\frac{1}{2}$	5	3 $\frac{1}{2}$
20,000	58 $\frac{1}{2}$	53	56	4 $\frac{1}{2}$	5	3 $\frac{1}{2}$
24,000	61	55	58	4 $\frac{1}{2}$	5	3 $\frac{1}{2}$
30,000	65	59	63	4 $\frac{1}{2}$	5	3 $\frac{1}{2}$
40,000	72	63 $\frac{1}{2}$	72	4 $\frac{1}{2}$	5	5
50,000	79	70	72	4 $\frac{1}{2}$	5	6
60,000	86	77	72	4 $\frac{1}{2}$	5	6

Special Ladle Bowls are made in any size or capacity to order.

Send drawing and specification; we will be prompt to name price for quick delivery.

STANDARD CAPACITY AND SIZES OF STEEL LADLE  
BOWLS FOR CAST STEEL

DIMENSIONS ARE INSIDE IN INCHES

Rated Capacity in Pounds of Cast Iron	Re-rated Capacity in Pounds of Cast Steel	Top Diameter	Bottom Diameter	Depth	Brick Lining		Top Allowance Above Capacity
					Sides	Bottom	
2,000	1,400	25½	23	24½	2½	3	5
2,500	1,800	27	25	26	2½	3	5
3,000	2,000	28½	26	27½	2½	3	5
3,500	2,500	30	27½	29	2½	3	5
4,000	3,000	31½	28½	30	2½	3	6
4,500	3,500	33½	30½	32	2½	3	6
5,000	4,000	34½	31	33	2½	3	6
6,000	5,000	36½	33	35	2½	3	8
8,000	7,000	40½	36½	38½	2½	3	8
10,000	9,000	43½	39	41	2½	3	8
12,000	7,500	45½	41	43½	4½	5	10
14,000	9,000	48	43	45½	4½	5	10
16,000	14,000	54	49	50½	4½	5	10
18,000	17,000	56	50½	54	4½	5	10
20,000	18,000	58½	53	56	4½	5	14
24,000	21,000	61	55	58	4½	5	14
30,000	22,000	65	59	63	6	7	16
40,000	34,000	72	63½	72	6	7	16
50,000	43,000	79	70	72	6	7	16
60,000	53,000	86	77	72	6	7	16



We handle all kinds of Foundry Equipment.  
Tell us what you want.

## The Newton Cupola

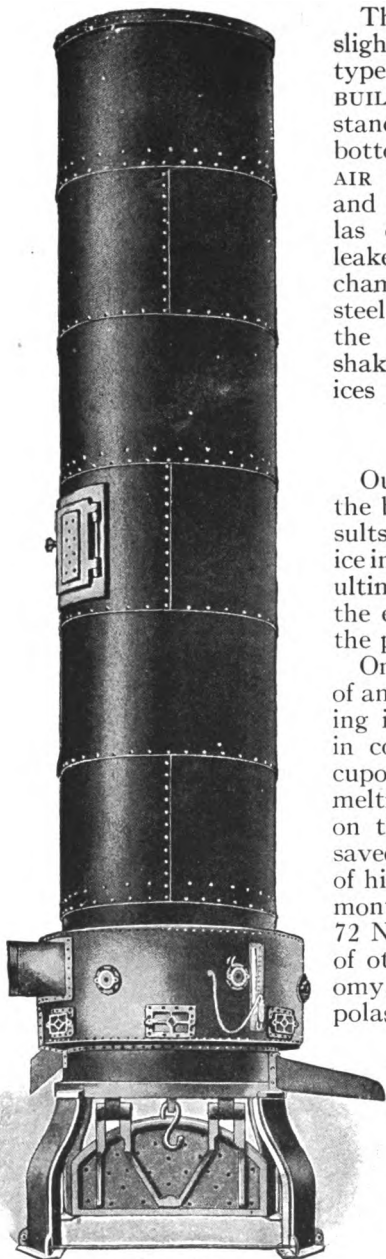


Fig. 606

THE NEWTON CUPOLA

The first cost of the Newton may be slightly more than that of some other types; it costs more to build; BUT IT IS BUILT RIGHT. The air chamber, for instance, is made entirely of steel—top and bottom, as well as sides. Its joints are AIR TIGHT joints between steel plates, and they STAY tight. We know of cupolas otherwise constructed which have leaked air like a sieve, because the air chamber joints between cast iron and steel had been cemented or puttied, and the expansion and contraction had shaken out the filling, allowing large crevices for the escape of the air.

### The Best Cupola Bargain

Our broad claim that the Newton is the best investment is based on the results shown in practical every-day service in hundreds of modern foundries. The ultimate cost is too often overlooked in the efforts to make a slight saving in the purchase price.

One customer who replaced a cupola of another make reports that he is melting in the Newton at 20 to 25% saving in coke, as compared with his former cupola, and with the same blast is also melting much faster. This customer, on the basis of a daily two-hour heat, saved, without realizing it, the entire cost of his Newton cupola in less than eight months. A large company using a No. 72 Newton cupola alongside two cupolas of other makes, reports such fuel economy, as compared with their other cupolas that on a run of average heats this saving paid back the slight additional price paid for the Newton cupola in 40 days, and the fuel saving alone paid for the whole Newton cupola in less than a year, not to mention a gain in the work "put up" and a better quality of castings.

Send for a four-page bulletin filled with convincing letters from users of the Newton.

## THE NEWTEN CUPOLA

### Some Features of Design

The bottom plate is very thick, and is heavily ribbed. A thick and high flange extends around the entire shell. Improved Tap Spout, Slag Spout, and curved columns are supplied. The base plates of columns are sufficiently large to properly distribute the weight on the foundation, and are connected by means of tension bolts.

A slag opening is located below the lower tuyeres, its height being adjustable to suit conditions. It is fitted with a suitable slag spout. By using the slag hole, the cupola can be kept from clogging, and continuous melting for a long period will result. We have many records of eight and ten-hour heats.

The Charging Door is extra large. The frame has a heavy iron slide at its base, protecting the lining. The charging doors may be either of the plate type for brick or mud lining, or of the wire screen type, the former being used unless otherwise ordered. Two charging-door openings or frames are provided on all cupolas larger than No. 72.

The Stack is of extra heavy steel, machine riveted in sections convenient for erection and having "down-opening" joints to shed water. Sufficient bolts or rivets are furnished for connecting the various sections. Angle Shelves are riveted to inside of stack at a suitable distance above the melting point, and also at frequent intervals throughout the stack, for supporting the lining during repairs.

Special Single Row Tuyere Cupolas (Design "B"). We can have constructed any size Newten Cupola with only the lower row of tuyeres if any customer prefers that construction. The upper tuyeres can always be closed at will by dampers when the standard construction is ordered; but for those wishing to use only a lower row of proper area we can always furnish this (Design "B") on short notice.

TABLE OF SIZES

No. of Cupola	Capacity in Tons of Iron Melted Per Hour	Diam. of Shell in Inches	Diameter Inside of Lining Allowing			
			4½-In. Lining	6-In. Lining	7-In. Lining	9-In. Lining
29T	½ to 1 (Test Cup)	30"	21"	.....	.....	.....
30	½ to 1 ton	30"	21"	.....	.....	.....
36	1¼ to 2½ tons	36"	27"	24"	.....	.....
42	3 to 5 tons	42"	33"	30"	28"	.....
48	4 to 6 tons	48"	.....	36"	34"	.....
54	6 to 7 tons	54"	.....	42"	40"	.....
60	8 to 9 tons	60"	.....	48"	46"	42"
66	9 to 11 tons	66"	.....	54"	52"	48"
72	11 to 12 tons	72"	.....	.....	58"	54"
78	12 to 14 tons	78"	.....	.....	64"	60"
84	14 to 18 tons	84"	.....	.....	70"	66"
90	18 to 20 tons	90"	.....	.....	.....	72"
96	20 to 24 tons	96"	.....	.....	.....	78"
108	25 to 30 tons	108"	.....	.....	.....	90"

607

## THE NEWTEN CUPOLA

## Small Cupolas for Test and School Work

## The Newton No. 29-T and No. 30

For test purposes in large foundries and for technical school purposes, we often furnish our No. 30 Cupola complete with stack (or in some cases in the form of No. 29-T, which is practically the No. 30 cut off at a height of 10 to 14 feet, and without charging doors, the iron being charged directly into top of stack in this instance). In the case of No. 29-T Cupola, we are also prepared to furnish, as an extra, an upper stack and hood like that used for the Keep Cupola described below; also a steel charging platform, with ladder and railing. Sometimes we are called upon to supply also a hoist and trolley for lifting the test charges to the platform. Because of its liberal diameter, the Newton Cupola in these sizes makes a most convenient Cupola to reline and look after.

## The Keep Sectional Cupola

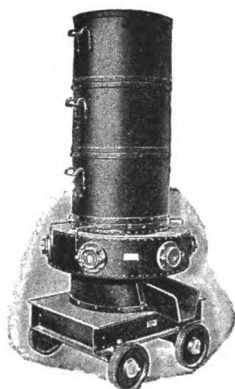


Fig. 608

The Keep Sectional Cupola is made in sections 18 inches deep and about 27 inches outside diameter. The lining used is usually about three inches thick, making the inside diameter 21 inches to 22 inches. A ring of angle iron is riveted to both ends of each section for stiffness, to hold the brick in place and to make a joint between sections. The lower section is set on a solid truck on wheels, so that the cupola can be rolled to any point required. The sections can be handled either by a trolley, placed a little to one side of the stack, and with an ordinary chain hoist or by a light bracket or jib crane.

A stack may be furnished, if wanted, suspended by rods or otherwise from the foundry roof. It is 27 inches in diameter and flares at the lower end. One side of the flaring portion is cut away for a charging door. The three-inch opening between the top of the cupola and the edge of the stack creates a strong draft and keeps the air fresh. Newton Patent Tuyeres are used in this cupola.

No.	Diam. Shell Inside	Diam. Inside of Lining	Height of 4 Sections Above Floor	Diam. Upper Stack	Diam. Air Chamber	Depth of Air Chamber	Height of Truck	Blast Opening	Diam. Blower Pipe
27 K	27"	22"	8 ft.	27"	39"	10"	19"	4½x10	7"

## THE COLLIAU CUPOLA FURNACE

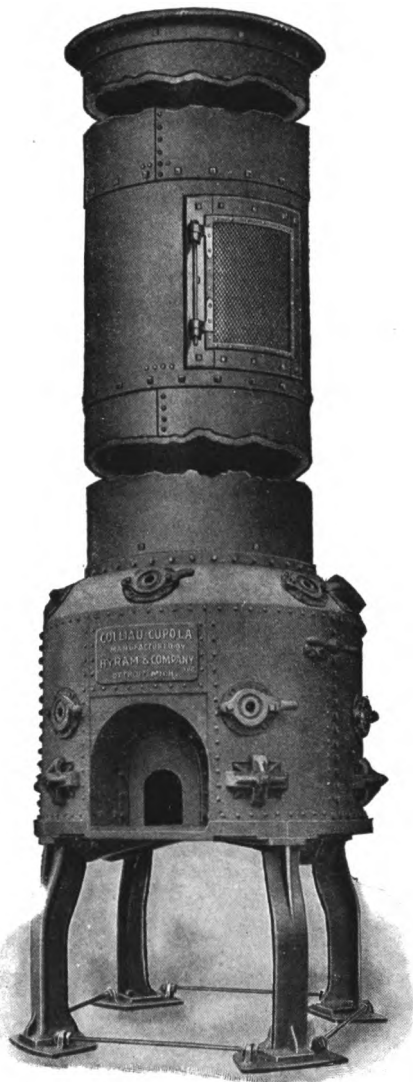


Fig. 609

bearing plate is placed between top of leg and base plates. Bolts of ample proportions securely fasten the joints. A sectional base plate is most important, as it provides for expansion and contraction from the heat. A base plate made in one piece is very liable to crack, which means expensive replacement. Legs and Drop Doors are of heavy design.

**BLAST GAUGE.**—Any make or type of blast gauge desired may be attached to the air chamber for registering the pressure of the air at the cupola.

The Wind Box or Air Chamber is entirely independent of the main base plate. It has flanged steel top and cast iron bottom. Sheet asbestos is placed between all joints, which are riveted on 2½-inch pitch. This construction makes a perfectly tight wind-box. On the outside are four large clean-out doors.

**TUYERES.**—There are six lower tuyeres of rectangular expanded type, which give a nearly continuous blast opening around the inside of lining. The combined area of the tuyeres is sufficient to give a low air velocity, which produces the best results. There are six upper tuyeres with independent lever gates. These tuyeres furnish air to the escaping gases and assist combustion. A safety tuyere is provided, which prevents the metal from running over the lower tuyeres into the wind-box.

It is common practice to locate the tapping and slag holes diametrically opposite each other. The wind inlets are diametrically opposite one another at top of wind-box, and 90 degrees from or at right angles to the tap spout. These two wind inlets give an equal distribution of air in the wind-box, and insure even melting of the charges.

The tapspout is furnished any length to suit conditions. Bottom or Base Plate is made in four sections of extra heavy construction, with joints over the legs. A steel

# THE COLLIAU CUPOLA FURNACE

## DIMENSIONS AND CAPACITIES

No. of Cupola	Diameter of Shell, Inches	Capacity Per Hour, Tons	No. of Cupola	Diameter of Shell, Inches	Capacity Per Hour, Tons
1	102	25 to 27	14	58	7 to 8
1½	96	22 to 24	16	54½	6 to 7
2	91	18 to 20	18	50½	5 to 6
4	86	17 to 18	20	49	4 to 4½
5	84	15 to 16	22	44	3½ to 4
6	80	13 to 14	24	42	2½ to 3½
8	76	12 to 13	26	37	2 to 2½
9	72	11 to 12	28	35	1 to 1½
10	67	10 to 11	30	33	½ to 1
12	63	8 to 10	32	28	½

PROPOSAL.—With each proposal is furnished a blue-print giving principal dimensions, with size of foundation required. Charging cards supplied upon request.

When asking for quotations give height of legs, charging door, and roof. Total height of cupola and capacity in tons of iron per hour.

# MERCURY CUPOLA BLAST GAUGE

Never Freezes

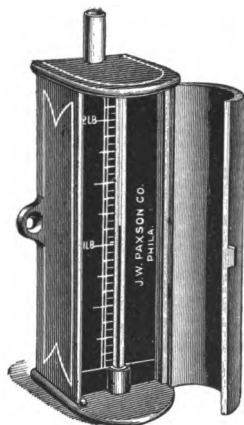
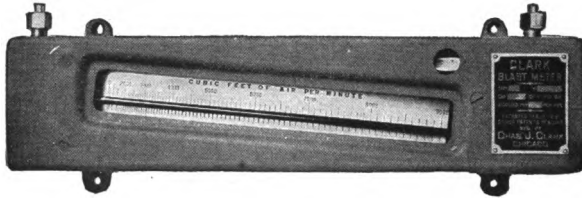


Fig. 610

Represents the latest design in blast gauges, for use with Cupolas. It is the best mercury blast gauge on the market for cupolas, blowers, or any pressure up to two pounds, graduation in ounces. The gauge should be placed on a side wall at a convenient distance from the cupola, and connect to bevel top of air chamber with a piece of rubber tubing. These gauges are sold separately; one is furnished with each cupola without extra charge.

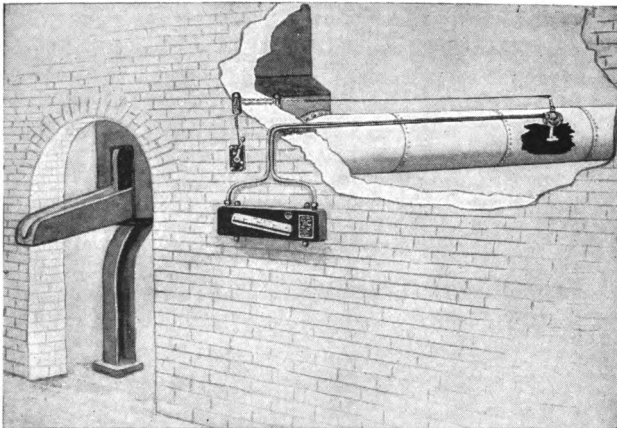
Used on Any Cupola. Price, \$4.00.

## The Clark Blast Volume Meter



**Fig. 611**

On request, we will send a special booklet which describes the Clark Meter fully, explains its use, and which contains much information on cupola operation.



**Fig. 612**

The Clark Blast Volume Meter indicates the quantity of blast that actually enters the cupola, the number of cubic feet per minute. This information is necessary in order to operate a cupola furnace properly. Each cupola requires a certain number of cubic feet of blast per minute for best results, the quantity being determined by the size of the cupola. The meter is built in various capacities to suit the different sizes of cupolas. Several hundred meters are in use.

**Price, \$75.00.**

**Page 277**



## Cupola Tenders Tools

### DOUBLE-END CUPOLA PICKS

Made of high-grade tool steel, tempered.

Length of pick, 10½ inches. Weight, 5 pounds net.

Price, including 16-inch handle, \$5.50 each.

Any weight pick made to order on short notice.

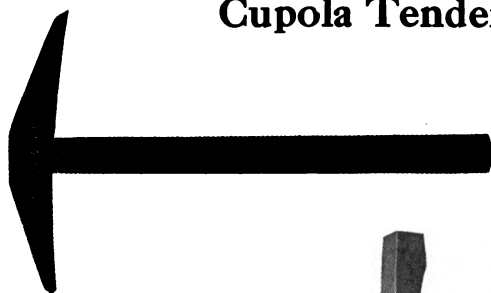


Fig. 613

### No. 105 CUPOLA PICK

Made of same quality of steel as our Double-end Cupola Picks.

Made in 5-pound size only.

Price, including handle, \$5.00 each.

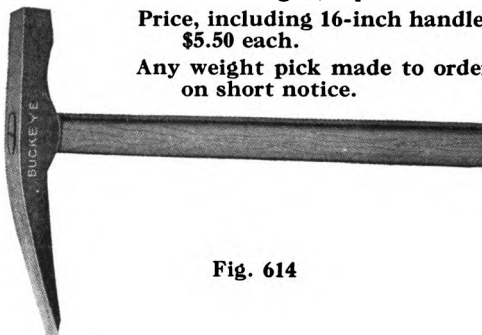


Fig. 614

### Tapping Bar

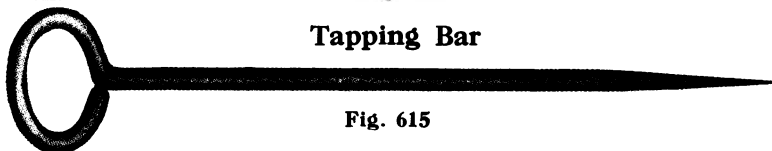


Fig. 615

### Tapping Chisel

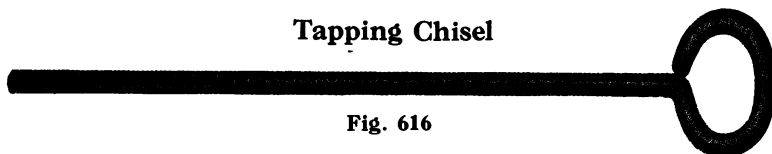


Fig. 616

### Bott Stick

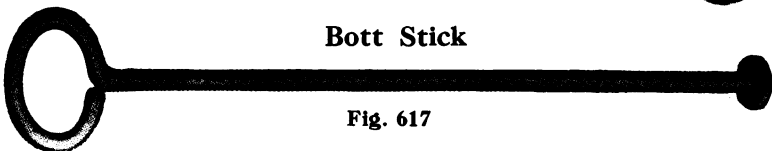


Fig. 617

Standard tools are 5 feet long, ¾ inch diameter.

Price, \$2.00 each.

Any length to order.

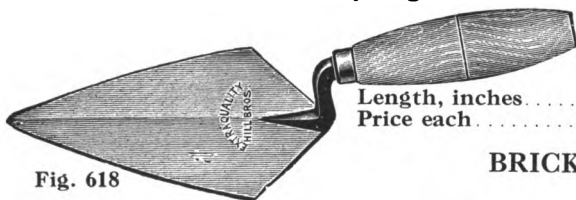


Fig. 618

### TROWELS

Length, inches.....	10	11	12	13
Price each.....	\$1.00	\$1.10	\$1.25	\$1.40

### BRICK CHISELS

Size.....	5/8x16
Price each.....	50c

Size.....	3/4x18
Price each.....	60c



Fig. 619

## CUPOLA LININGS

We guarantee our Cupola Blocks and Fire Brick to be made of the highest refractory material obtainable. It is always the best policy to purchase fire brick made of this class, as it saves the foundryman time, money, and labor.

Fire brick expands when heated, which causes the lining to expand against the shell. When the cupola cools, contraction occurs. To prevent ruining the cupola shell, a space must be left between the shell and lining of one-half to one inch, which can be filled with a mixture of dry ground cinders and fireclay or finely broken old cupola blocks, mixed with fireclay. This acts as a cushion and takes up the expansion and contraction.

We can furnish any size circle you desire. A combination of the square and split, or arch brick, together with our cupola blocks can be arranged to make any thickness or diameter of lining desired. The following combinations may be used:

No. 1. For  $4\frac{1}{2}$ -inch lining, use  $9 \times 9 \times 4\frac{1}{2}$ -inch cupola blocks, sizes A to H. Any combination may be formed from 16 inches to 73 inches inside lining of cupola. (See Fig. 623.)

No. 2. For  $4\frac{1}{2}$ -inch lining, use  $9 \times 4\frac{1}{2} \times 2\frac{1}{2}$  circle fire brick. By alternating the different circle bricks intermediate diameters may be obtained. (See Fig. 625.)

For 6-inch lining, use  $9 \times 6 \times 4$ -inch cupola blocks, sizes 30 to 72. Combination of these blocks can be made for circles 30 inches to 72 inches inside diameter of lining. (See Fig. 624.)

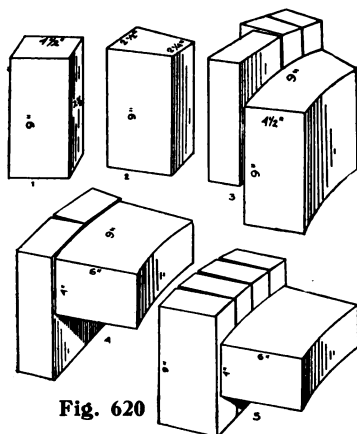


Fig. 620

The cuts show the various combinations for the different thicknesses of linings.

Nos. 1 and 2 illustrate the different forms of common fire brick.

No. 3 represents standard method of lining, either 7 inches or 9 inches thick, using  $4\frac{1}{2}$ -inch blocks.

No. 4 represents standard method of lining, 9 inches thick, using 6-inch blocks.

No. 5 represents standard method of lining, 11 inches thick, using 6-inch blocks.

# CUPOLA LININGS

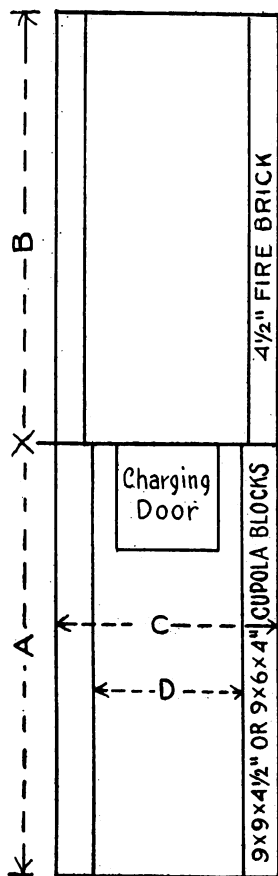


Fig. 621

A—To Charging Door.  
B—Charging Door to Top.  
C—Inside Diameter of Shell.

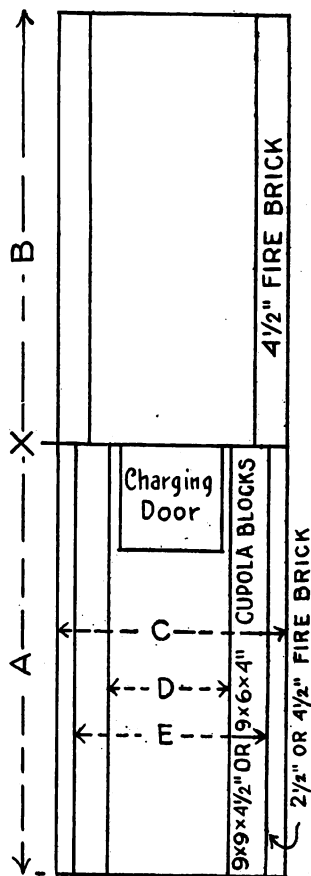


Fig. 622

D—Inside Diameter of Lining.  
E—Inside Diameter of Backing.

When a complete lining is wanted, please give us the following information:

- Height of Cupola Shell.
- Height of Cupola Linings to top of Charging Door.
- Height of Cupola Lining above Charging Door.
- Diameter of Cupola Shell.
- Inside diameter of Cupola Lining below Charging Door.
- Inside diameter of Cupola Lining above Charging Door.
- Specify if single or double Cupola Lining is desired.

Fire Brick and Cupola Blocks should be laid in the same clay from which they are manufactured.

Our Fire Clay is ground fine and screened, same grade of material that our Cupola Blocks and Fire Brick are made of.

## Cupola Blocks

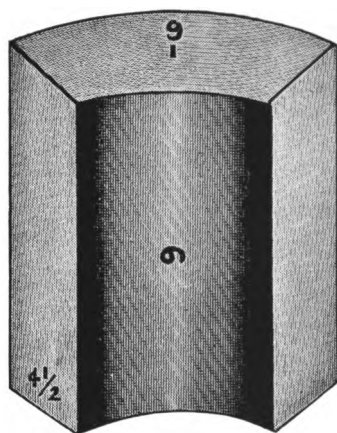


Fig. 623

### 9 x 9 x 4½ Cupola Blocks

Approximate weight, 23 pounds each.

Size	Diameter		Number to Circle
	Inside, Inches	Outside, Inches	
A	16	25	9
B	21	30	11
C	27	36	13
D	30	39	14
E	40	49	17
F	51	60	21
G	60	69	24
H	73	82	29

When combining the above blocks, any circle from 16 inches to 73 inches inside diameter may be formed.

### 9 x 6 x 4 Cupola Blocks

These Blocks weigh approximately 13 pounds each.

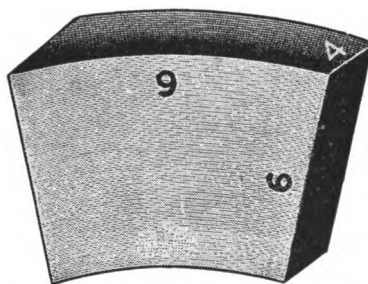


Fig. 624

Size	Diameter		Number to Circle
	Inside, Inches	Outside, Inches	
30	30	42	15
36	36	48	17
42	42	54	19
48	48	60	21
54	54	66	23
60	60	72	25
66	66	78	27
72	72	84	30

## Standard 9-inch Fire Brick

### Circle Brick

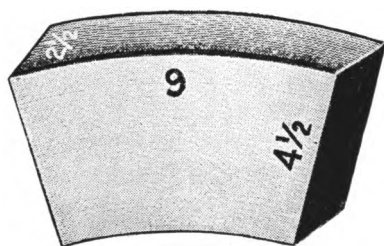


Fig. 625

Inside	Diameter		Number to Circle
	Outside		
24	33		12
36	45		15
48	57		20
60	69		25
72	81		28

These bricks weigh approximately 7 pounds each.

### ARCH BRICK

No.	Size	Circle	Number to Circle
1	9x4 1/2 x 2 1/2 x 2 1/2	4 ft. 3 in.	76
2	9x4 1/2 x 2 1/2 x 1 3/4	1 ft. 9 in.	38
3	9x4 1/2 x 2 1/2 x 1	6 in.	19

See table of Circles, page 283.

Weight, approximately 5 to 7 pounds each. Any combination of circle from 6 inches to 12 feet, inside diameter, may be formed when combining our arch and square brick.

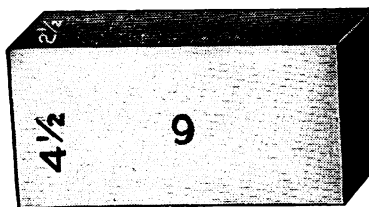


Fig. 626

### SPLIT BRICK

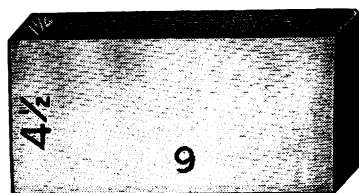


Fig. 627

1 1/4-Inch Split,  
Approximate Weight,  
3 1/2 Pounds Each

2-Inch Split,  
Approximate Weight,  
5 1/2 Pounds Each

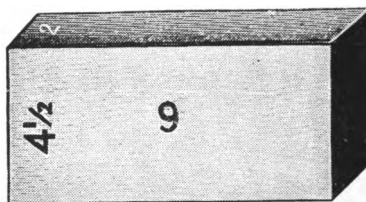


Fig. 628

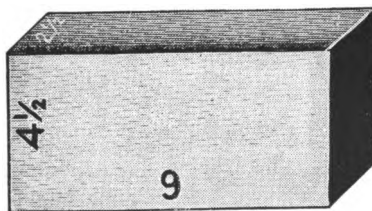


Fig. 629

### SQUARE BRICK

Approximate Weight, 7 Pounds Each.

# THE BUCKEYE PRODUCTS COMPANY

## Number of Brick Required to Make Various Circles 9 x 6 x 4 Cupola Blocks

Inside Diam. of Lining		Shapes Required				
Ft.	Ins.	30-Inch	36-Inch	48-Inch	60-Inch	72-Inch
2	6	15"				
2	9	8"	8"			
3	0		17"			
3	3		12"	6"		
3	6		8"	11"		
3	9		4"	16"		
4	0			21"		
4	3			15"	7"	
4	6			10"	13"	
4	9			5"	19"	
5	0				25"	
5	3				19"	7"
5	6				12"	15"
5	9				6"	22"
6	0					29"

## 9 x 9 x 4½ Cupola Blocks

Inside Diam. of Lining		Shapes Required							
Ft.	Ins.	A	B	C	D	E	F	G	H
1	4	9							
1	6	6	4						
1	9		11						
2	0		6	6					
2	3			13					
2	6				14				
3	0				6	10			
3	4					17			
3	6					14	4		
4	0					5	15		
4	3						21		
4	6						20		
5	0							2	
5	6							24	
5	9							13	13
6	0							2	27

## Table of 9-Inch Arch Brick

Inside Diameter	No. 3 Arch	No. 2 Arch	No. 1 Arch	Straight	Total
0 ft. 6 in.	19				19
1 " 0 "	12	15			27
1 " 6 "	4	30			34
2 " 0 "		34	8		42
2 " 6 "		26	23		49
3 " 0 "		19	38		57
3 " 6 "		11	53		64
4 " 0 "		4	68		72
4 " 6 "			76	4	80
5 " 0 "			76	11	87
5 " 6 "			76	19	95
6 " 0 "			76	27	103
6 " 6 "			76	34	110
7 " 0 "			76	42	118
7 " 6 "			76	49	125
8 " 0 "			76	57	133

CIRCUMFERENCE OF CIRCLES

( OUTSIDE MEASUREMENT )

Diameter	Circum.	Diameter	Circum.	Diameter	Circum.
6	18.84	26	81.68	60	188.4
7 ½	20.42	27 ½	83.25	61	191.6
7	21.99	27	84.82	62	194.7
8 ½	23.56	28 ½	86.39	63	197.9
8	25.13	28	87.96	64	201.0
9 ½	26.70	29 ½	89.53	65	204.2
9	28.27	29	91.10	66	207.3
10 ½	29.84	30 ½	92.68	67	210.4
10	31.41	30	94.24	68	213.6
11 ½	32.98	31 ½	95.82	69	216.7
11	34.55	31	97.38	70	219.9
12 ½	36.12	32 ½	98.96	71	223.0
12	37.69	32	100.5	72	226.1
13 ½	39.27	33	103.6	73	229.3
13	40.84	34	106.8	74	232.4
14 ½	42.41	35	109.9	75	235.6
14	43.98	36	113.0	76	238.7
15 ½	45.55	37	116.2	77	241.9
15	47.12	38	119.3	78	245.0
16 ½	48.69	39	122.5	79	248.1
16	50.26	40	125.6	80	251.3
17 ½	51.83	41	128.8	81	254.4
17	53.40	42	131.9	82	257.6
18 ½	54.97	43	135.0	83	260.7
18	56.54	44	138.2	84	263.8
19 ½	58.11	45	141.3	85	267.0
19	59.69	46	144.5	86	270.1
20 ½	61.26	47	147.6	87	273.3
20	62.83	48	150.7	88	276.4
21 ½	64.40	49	153.9	89	279.6
21	65.97	50	157.0	90	282.7
22 ½	67.54	51	160.2	91	285.8
22	69.11	52	163.3	92	289.0
23 ½	70.68	53	166.5	93	292.1
23	72.25	54	169.6	94	295.3
24 ½	73.82	55	172.7	95	298.4
24	75.39	56	175.9	96	301.5
25 ½	76.96	57	179.0	97	304.7
25	78.54	58	182.2	98	307.8
26 ½	80.11	59	185.3	99	311.0

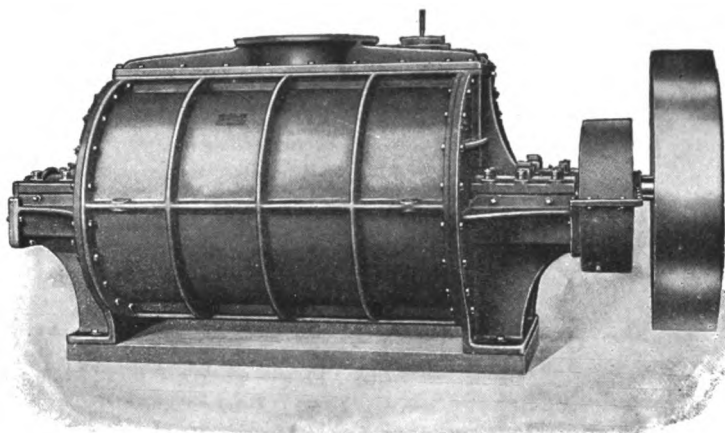
630

SPECIAL BRICK

We can furnish special shapes and sizes of Cupola Blocks and Fire Brick.

Send sketch showing dimensions and quantity desired.

**CONNERSVILLE ROTARY POSITIVE BLOWER**



**Fig. 631**

**Without Outboard Bearing**

This type of blower was especially designed for use in the foundry. They are high-grade in material and workmanship, and we invite a careful investigation of the design and construction of these machines over other makes of blowers.

A few of the valuable features to which we desire to call your attention.

They have only two impellers, each cast in one piece and planed all over; they revolve together with uniform clearance. No waste of power or disagreeable noise, as they have no waste space or pockets between impellers.

The feet are broad and thick, affording ample surface on the foundation.

The cylinders are heavy and well ribbed, and are able to carry a substantial blast pipe without springing the blower. The shafts are large and extend full length of blower.

The bearings are ring-oiling, adjustable quarter-box type. The gears have wide faces, and are accurately cut from the solid by latest gear-cutting machines. This method produces perfect results.



CONNERSVILLE ROTARY POSITIVE BLOWER

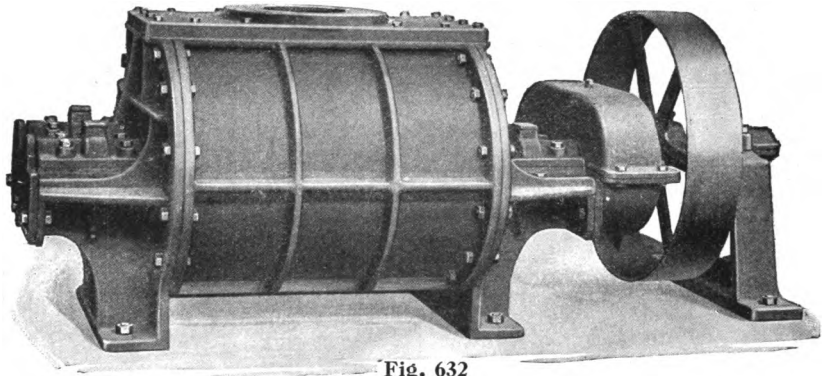


Fig. 632

With Outboard Bearing

Horizontal "Type S-F" Blower

Top discharge with outboard bearing, single pulley, and gears on driving end. Recommended for foundry cupolas, etc.

Size of Blower, Cu. Ft.	For Cupola Sizes	Speed in R.P.M.	Tons Per Hour	H. P.	Size of Pipe Opening	Floor Space, Inches	Pulley Size, Inches	Weight
13	37 to 48"	235	6	15	14	46x84	34x5	5,000
		310	8	20				
		385	10	25				
17	45 to 54"	240	8	20	16	48x99	36x6	6,200
		300	10	25				
		350	12	30				
24	48 to 60"	210	10	25	18	55x105	42x7	8,000
		255	12	31				
		300	14	36				
33	54 to 66"	185	12	30	20	60x116	42x8	10,350
		230	15	38				
		275	18	45				
45	60 to 72"	170	15	38	20	66x128	48x10	13,500
		200	18	45				
		230	21	52				
57	66 to 78"	160	18	45	24	71x137	54x10	16,800
		185	21	53				
		210	24	60				
65	72 to 84"	165	21	54	24	76x144	60x12	21,000
		185	24	60				
		205	27	67				
84	78 to 90"	145	24	61	27	82x153	66x14	23,500
		160	27	67				
		175	30	73				
100	2-60 to 66"	135	27	67	30	88x169	72x14	31,800
		150	30	75				
		165	33	82				
118	2-66 to 72"	130	30	77	30	94x170	72x16	35,800
		140	33	83				
		150	36	88				

On pressure of 1 lb. per sq. in. and less, we recommend without outboard bearing. Over this pressure, with outboard bearing.

ROOTS FOUNDRY TYPE ROTARY POSITIVE BLOWER

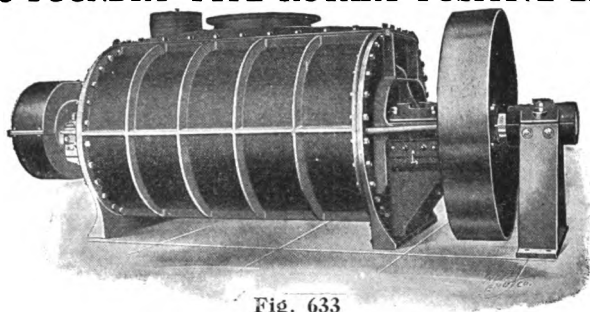


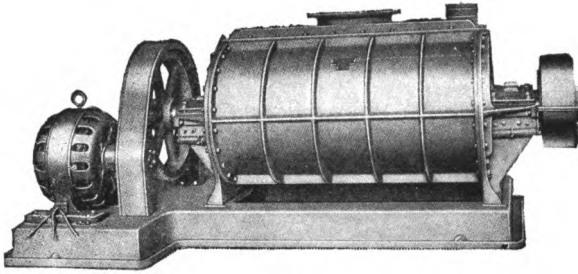
Fig. 633

**Horizontal Type  
CAPACITY TABLE**

Blower No.	Displacement in Cu. Ft.	Inside Diameter of Cupola, Inches	Tons Per Hour	R. P. M. of Blower	H. P. at Shaft for 1-lb. Pressure	Size of Outlet, Inches
1	2.95	21	1	170	2.5	8
		23	1 1/4	205	2.8	
		24	1 1/2	250	3.5	
		27	2	340	4.8	
2	4.8	24	1 1/2	150	3.5	10
		27	2	210	4.8	
		30	3 1/2	365	8.3	
3	8.3	28	2 1/2	160	6.3	12
		30	3 1/2	215	8.5	
		32	5	325	12	
4	13.1	33	5	190	12	14
		37	6	230	14.5	
		42	7	270	16	
5	19.6	42	7	180	16	16
		45	8	230	22	
		48	10	255	24	
5 1/2	28.2	48	10	180	24	18
		54	12	215	28	
		58	13	230	30.8	
6	38.5	54	12	160	28	20
		60	14	185	34	
		64	16	210	38.4	
6 1/2	51.2	62	15	150	36.5	22
		66	18	175	42.6	
		72	21	205	51	
7	61.6	66	18	145	42.6	24
		72	21	170	51	
		78	24	195	58	
7 1/2	81.0	72	21	130	51	28
		78	24	150	58	
		84	28	175	65	
8	111.2	84	28	125	65	30
		87	30	135	73	
		90	33	145	76.6	
		2-66	36	160	84.5	

Same capacities apply whether Belt, Engine, or Motor-driven.

**ROOTS FOUNDRY TYPE ROTARY POSITIVE BLOWER**



**Fig. 634**

The three things a foundryman must know in selecting a blower are:

**FIRST.**—What tonnage he wishes to melt. When this is known, refer to table on following page and select proper size blower.

**SECOND.**—Whether horizontal or vertical blower is best fitted to his conditions.

**THIRD.**—Whether motor, engine, or belt-driven.

**BEARINGS.**—These blowers are furnished with adjustable self-oiling bearings and lined with high-grade babbitt.

**IMPELLERS.**—The impellers are of the Tangent Arc Type, planed all over.

**SHAFTS.**—The shafts are of the best grade of open-hearth steel.

**GEARS.**—The gears are semi-steel, cut from solid blank by special-formed cutters, which insures quiet operation.

The blowers are not suitable only for cupola service, but can be used in connection with oil and gas furnaces or for any other purpose where a positive blast is required.



We can take care of your blower problems—  
put them up to us.

## Buffalo Steel Pressure Blowers

### Steel Pressure Blower for High Pressure Service

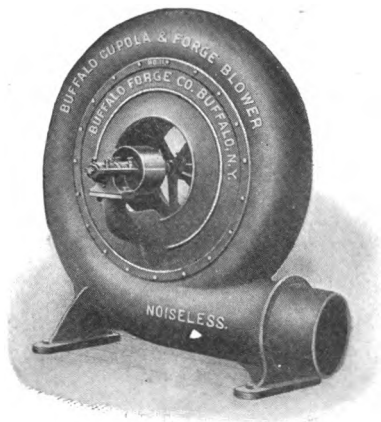


Fig. 635

Buffalo Steel Pressure Blowers are designed and built especially to withstand the strains of high-pressure duty, for supplying blast to cupolas, furnaces, forge fires, sand-blast machines, and for any work where air is to be forced for a long distance.

A distinguishing feature of the construction is the solid peripheral shell, with the side plates securely fastened thereto, resulting in a blower of maximum strength and rigidity. The long adjustable bearings, of Buffalo oil-ring type, are so carried as to preclude any possibility of incorrect alignment.

The smaller sizes of blowers, Nos. 1 to 6, have but one pulley, while Nos. 7 to 12 have two pulleys.

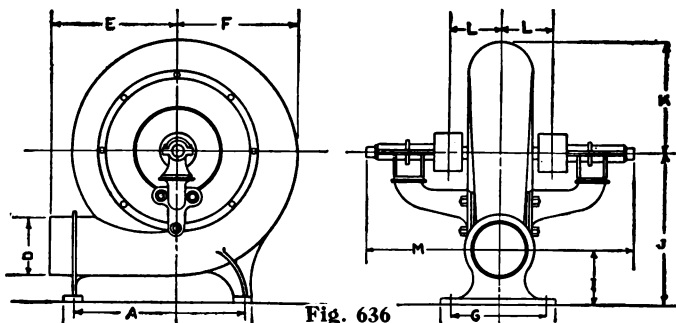


Fig. 636

TABLE OF DIMENSIONS AND PRICES

Size No.	D	E	F	G	I	J	K	L	M	Pulley		Shipping Weight	Price Without Countershaft
										Diam.	Face		
1	3½	7	5¾	6¾	2¾	7	5½	3	14½	2¼	1¾	55	\$15.00
2	4	8½	6½	6¼	3¾	9¼	6	4	19½	2¾	2¼	75	22.50
3	4¾	11¼	8¼	7	3¾	10¾	8½	4¾	23	3	2½	95	32.50
4	5	13½	10¼	9	4¾	13½	10	5	25¼	4	3	135	45.00
5	5¾	14¼	12	11½	5	14¼	11½	4¾	24½	4¼	3	180	55.00
6	6¼	15¾	13¼	13	6	16¾	13	5¾	27¾	4½	3½	265	68.75
7	7¼	16¼	14¾	13½	7	19¼	14	6½	33¾	5	4½	308	87.50
8	8¾	19	17	15	8¾	21½	16½	9	40	6	4½	445	112.50
9	10	22	20	16	9¾	25	19	9¾	41	7	5	635	143.75
10	12¼	28	25½	17½	10½	30½	25½	10½	45¼	8	5¾	820	200.00
11	14½	28	30½	21½	11½	36½	29	12	50¾	8½	6½	1,400	281.25
11½	16½	33	36	23	12	41½	34	12¾	53	10	7	1,900	243.75
12	18	33	36	23	12	41½	34	12¾	53	10	8	1,950	406.25

# Buffalo Steel Pressure Blower Countershafts

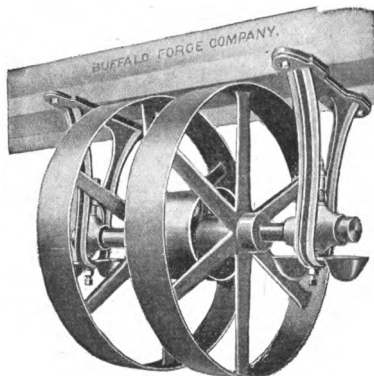


Fig. 637

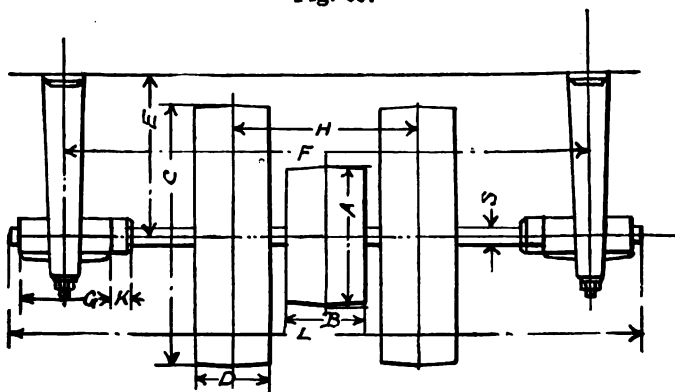


Fig. 638

## PRINCIPAL DIMENSIONS IN INCHES, AND PRICES

No. of Counter-shaft, Also No. S. P. Blower	S	A	B	C	D	F	*Price	Extra for Tight and Loose Pulleys	Shipping Weight of Counter-shaft
1	$\frac{7}{8}$	4	3	12	$1\frac{3}{4}$	$15\frac{1}{2}$	\$10.00	\$5.00	45
2	1	5	$3\frac{1}{2}$	14	$2\frac{1}{4}$	$17\frac{1}{4}$	12.00	5.50	60
3	$1\frac{1}{8}$	6	4	16	$2\frac{3}{8}$	$18\frac{7}{8}$	14.00	6.50	85
4	$1\frac{1}{4}$	7	$4\frac{1}{2}$	18	3	$21\frac{1}{2}$	17.00	8.00	100
5	$1\frac{3}{8}$	8	$4\frac{1}{2}$	21	3	$22\frac{1}{2}$	23.00	9.00	135
6	$1\frac{5}{8}$	9	5	26	$3\frac{1}{2}$	$25\frac{1}{4}$	28.00	10.00	190
7	$1\frac{3}{4}$	10	$5\frac{1}{2}$	30	$4\frac{1}{2}$	$33\frac{1}{4}$	40.00	12.00	340
8	2	12	6	32	$4\frac{1}{2}$	$37\frac{1}{4}$	50.00	13.00	400
9	$2\frac{1}{4}$	14	6	36	5	$41\frac{1}{4}$	80.00	14.00	520
10	$2\frac{1}{2}$	16	8	40	$5\frac{3}{4}$	$44\frac{3}{4}$	100.00	15.00	625
11	$2\frac{3}{4}$	17	10	42	$6\frac{1}{2}$	51	115.00	18.00	830
$11\frac{1}{2}$	3	18	12	44	7	64	125.00	25.00	900
12	3	18	12	44	8	67	140.00	28.00	965

\* Countershafts up to and including No. 6 have one driving pulley only.

# Steel Pressure Blowers



Fig. 639

Steel Pressure Blower

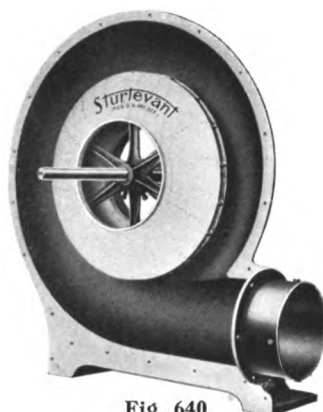


Fig. 640

Steel Pressure Blower (one side removed)

Sturtevant Steel Pressure Blowers were originally designed for supplying air to cupolas and forges, but the uses have been extended for fifty years, until they are now used for all purposes where pressures up to 16 ounces per square inch are to be maintained, and where air is to be forced for long distances.

The casing of the blower is cast in two parts bolted together with a circular outlet. For all but the larger sizes, the brackets for the bearings are cast in one piece with the casing.

The blast wheel is made of refined steel plate and galvanized for protection against rust. The blades are stiffened by curvature and flanged and are mounted upon the arms of the hub.

The wheels are accurately balanced and run smoothly when driven at the highest speeds. The pressure at which the air is discharged depends upon the speed of the fan.

Journal bearings are of unusual length, which makes possible sustained operation for long periods.

## SIZES, CAPACITIES, WEIGHTS—STEEL PRESSURE BLOWERS

Size	Capacities						Dia. Wheel	O. S. Dia. Outlet	Extreme Dimensions			Single Pulley		Two Pulley		Weight Not Packed	Price
	R.P.M.	C.F.M.	H.P.	R.P.M.	C.F.M.	H.P.			Length	Width	Height	Dia.	Face	Dia.	Face		
0000	6770	376	.9	9450	538	2.5	7 1/8	2 3/8	10 1/4	9 3/4	12	1 1/2	1 3/8			17	\$ 20.00
00	5240	618	1.4	7320	874	4.1	9 3/8	3 3/8	13 1/4	12 3/4	15 1/2	2 3/8	1 7/8			35	26.00
0	4450	780	1.8	6210	1103	5.1	10 3/8	4	15 1/4	14 1/4	18 3/4	3	2 1/8			55	36.00
1	3900	900	2.1	5450	1251	5.9	12 1/8	4 7/8	18	16 3/8	20 3/8	3 3/8	2 3/8			85	44.00
2	3280	1075	2.5	4600	1480	7.0	14 9/16	5 5/8	21	18	24	3 3/8	2 5/8			110	55.00
3	2810	1500	3.4	3930	2085	9.8	17	6 1/4	24 1/4	20 3/8	28 1/8	4 3/8	3			155	70.00
4	2450	1615	3.9	3420	2260	10.6	19 1/2	7 3/8	28 1/8	25 3/8	33 3/8	5 3/8	4	5	3 1/2	300	90.00
5	2100	1990	4.6	2935	2800	13.2	22 3/4	8 7/8	34	29 3/8	39 3/8	6 3/8	4 1/2	5 3/8	4	375	115.00
6	1910	2555	5.7	2670	3600	16.8	25	10 3/8	39 3/8	34 3/8	45 3/8	7 3/8	5 3/8	6 3/8	4 1/2	575	180.00
7	1540	4225	10.0	2155	5900	27.9	31	12	45 3/8	41	51 3/8	9 3/8	6 1/2	7 3/8	5 3/8	840	225.00
8	1345	6215	14.7	1880	8700	41.0	35 1/2	12 7/8	52	46	59	10 3/8	8 3/8	9 3/8	6 3/8	1125	325.00
9	1160	7240	17.	1620	10000	47.5	41 1/2	16	60 1/2	51 1/2	69 3/4	12 3/8	10 3/8	10 3/8	8	1650	450.00
10	1015	14770	34.	1420	20600	96.8	47	18 1/2	70	60 3/4	80 3/4	16	15	12 3/8	9 3/4	2650	575.00

## Cupola and Blower Data

The following table of sizes, dimensions, capacities, and requirements of various makes of Cupolas and Blowers will be found useful in making plans for foundry equipment of this character.

SIZE AND MAKE BLOWER RECOMMENDED TO GIVE FULL MELTING CAPACITY

Outside Diameter Cupola, Inches	Diam. Inside Usual Lining Below Charg'd Door, Inches	Capacity Cupola, Tons Per Hour	Cu. Ft. Air Required Per Min. for Full Cap'y	American Fan	Buffalo Fan	Sturtevant Fan	Roots Positive Pressure	Connorsville Positive Pressure
30	21	1½ to 1	560	No. 1 "P"	No. 4	No. 2	No. 1	3.3 cu ft. per rev.
35	27	1½ to 2½	1,050	" 3 "P"	" 6	" 3	" 2	6 " " " "
42	28 to 33	3 to 5	2,000	" 7 Sp.	" 7	" 4	" 3	10 " " " "
48	34 to 36	4 to 6	2,500	" 7	" 8	" 5	" 4	10 " " " "
54	40 to 42	6 to 7	3,300	" 8	" 9	" 5	" 4	13 " " " "
60	42 to 48	8 to 9	4,000	" 8	" 10	" 6	" 5	13 " " " "
66	48 to 52	9 to 11	5,000	" 11	" 10	" 7	" 5½	17 " " " "
72	54	11 to 12	6,000	" 11	" 11	" 7	" 5½	17 " " " "
78	60	12 to 14	7,100	" 11	" 11	" 7	" 6	24 " " " "
84	66	14 to 18	8,000	" 12	" 11½	" 8	" 6 or 6½	33 " " " "
90	72	18 to 20	9,100	" 12	" 11½	" 8	" 6½	45 " " " "
96	78	20 to 24	10,000	" 12	" 12	" 9	" 7	57 " " " "
108	84 to 90	25 to 30	12,200	" 13	.....	" 9	" 7½ or 8	65 " " " "

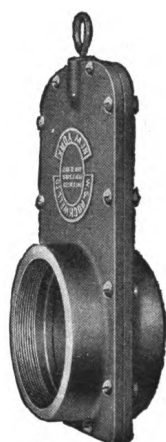


Fig. 641

## New Air Tight Blast Gate

For Low or Moderate Pressure

In presenting the new air-tight slide type Blast Gate we believe we have overcome the loss of air which is common to the ordinary make of blast gate.

The construction is very simple, being two iron casings bolted together, a brass blade entirely housed in, handle passing through a stuffing box. This construction, together with the finish and assembly, makes it the best blast gate made for low and moderate pressure.

Further information on application. In writing, state size wanted.

TABLE OF DIMENSIONS

No. Stan. Size Pipe Connections	Length Over All, Closed	Width Over All	Thickness of Flange	Weight, Pounds	Price Each
2	9 $\frac{5}{8}$	4 $\frac{1}{8}$	2 $\frac{3}{4}$	10	\$3.75
2 $\frac{1}{2}$	10 $\frac{3}{4}$	4 $\frac{5}{8}$	3 $\frac{1}{2}$	12	4.50
3	12	5 $\frac{1}{4}$	3 $\frac{3}{4}$	15	5.25
4	14 $\frac{5}{8}$	6 $\frac{1}{2}$	4	20	6.75
5	16 $\frac{5}{8}$	7 $\frac{1}{2}$	4 $\frac{1}{4}$	35	9.00
6	19 $\frac{1}{8}$	8 $\frac{7}{8}$	4 $\frac{1}{2}$	55	12.00

## BUFFALO IMPROVED BLAST GATE



Fig. 642

The Buffalo Improved lever type blast gate is especially designed for opening, closing, and regulating quickly the blast in air pipes.

It is essential for maximum efficiency that blast pipes be of adequate size and as short as possible.

Prices on application.



## Buckeye Reliable Tumbling Mill

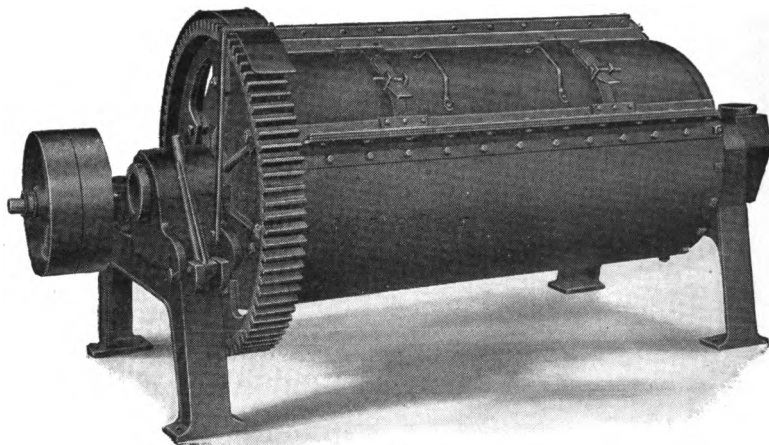


Fig. 643

Buckeye Steel Exhaust Tumbling Mills are very simple in design and rugged in construction. They are built for heavy service, and will stand up under the most severe usage.

### HEADS

The mill heads are made of semi-steel and reinforced to secure the greatest strength. The machined trunnions are extra large and are cast integral with the head. The steel shell is bolted securely to the mill body, forming a tight joint.

### PERFORATED HEADS

The outer heads are protected with semi-steel perforated exhaust heads which are amply heavy to stand severe usage.

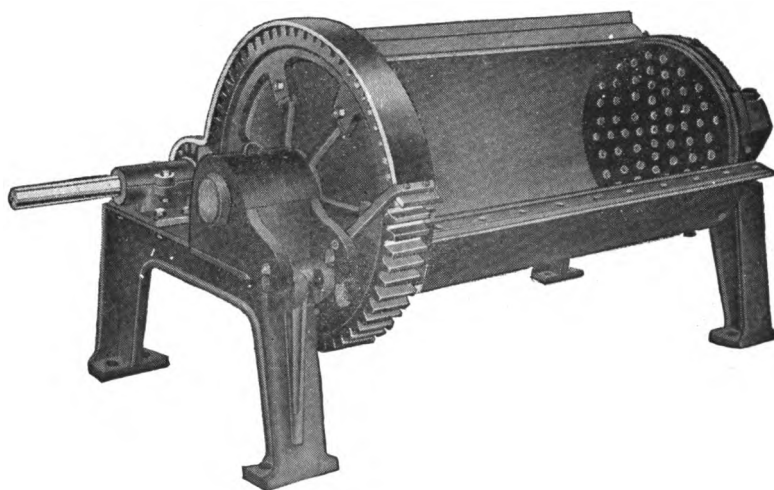
### BEARINGS

The trunnions run in cast iron ring-oiling ball and socket bearings, which require no attention except to keep the oil reservoir full. Both the trunnions and bearings are machined, and are practically indestructible if kept supplied with oil.

### GEARS

The gears and pinions are very heavy and correctly designed, run easily and with a minimum amount of wear. All gears are machined and mounted on machined pads, thus insuring a true running mill. All gears are provided with a steel gear guard to prevent accidents.

## BUCKEYE RELIABLE TUMBLING MILLS



**Fig. 644**

### Showing Perforated Exhaust Heads

#### LEGS OR STAND

The stands are very heavy and rugged, and are cast solid in one piece, and provide a rigid base for supporting the mill.

#### AUTOMATIC DUST BOX

All exhaust mills have hollow trunnions, and are fitted with a dust-box which collects all the sand and heavy particles in a hopper, which automatically cleans itself when a sufficient amount is collected.

#### DOOR

The doors of Buckeye Mills run the full length of the mill, and are securely locked in place by a positive steel locking device which permits the door to be lifted very quickly and easily. This type door lock is far superior to the old type catch with which so many mills are equipped.



Why not send us your order for Hard Iron Stars or Star Milling Plate?  
See page 122.

# THE BUCKEYE PRODUCTS COMPANY

## BUCKEYE RELIABLE TUMBLING MILLS

### LIST OF SIZES AND PRICES

Size Mill (Inside Measure- ments)	Thick- ness of Steel Shell	Price with Exhaust	Approx- imate Weight	Thick- ness of Steel Shell	Price with Exhaust	Approx- imate Weight	Size of Pulley (for One Mill)	Speed of Pulley, R. P. M.
18 x 24 inches.....	$\frac{3}{8}$ inch	\$107.00	1,037	$\frac{1}{2}$ inch	\$112.00	1,100	16 x 4	175
18 x 30 inches.....	$\frac{3}{8}$ inch	112.00	1,077	$\frac{1}{2}$ inch	118.00	1,150	16 x 4	175
18 x 36 inches.....	$\frac{3}{8}$ inch	118.00	1,110	$\frac{1}{2}$ inch	125.00	1,200	16 x 4	175
18 x 42 inches.....	$\frac{3}{8}$ inch	124.00	1,150	$\frac{1}{2}$ inch	133.00	1,250	16 x 4	175
18 x 48 inches.....	$\frac{3}{8}$ inch	130.00	1,190	$\frac{1}{2}$ inch	140.00	1,300	16 x 4	175
18 x 60 inches.....	$\frac{3}{8}$ inch	142.00	1,230	$\frac{1}{2}$ inch	153.00	1,350	16 x 4	175
20 x 30 inches.....	$\frac{3}{8}$ inch	127.00	1,170	$\frac{1}{2}$ inch	133.00	1,240	18 x 4	175
20 x 36 inches.....	$\frac{3}{8}$ inch	132.00	1,220	$\frac{1}{2}$ inch	140.00	1,300	18 x 4	175
20 x 42 inches.....	$\frac{3}{8}$ inch	138.00	1,280	$\frac{1}{2}$ inch	147.00	1,360	18 x 4	175
20 x 48 inches.....	$\frac{3}{8}$ inch	144.00	1,345	$\frac{1}{2}$ inch	154.00	1,420	18 x 4	175
20 x 54 inches.....	$\frac{3}{8}$ inch	150.00	1,410	$\frac{1}{2}$ inch	161.00	1,480	18 x 4	175
20 x 60 inches.....	$\frac{3}{8}$ inch	156.00	1,460	$\frac{1}{2}$ inch	168.00	1,540	18 x 4	175
24 x 36 inches.....	$\frac{3}{8}$ inch	154.00	1,750	$\frac{1}{2}$ inch	165.00	1,835	20 x 4	160
24 x 42 inches.....	$\frac{3}{8}$ inch	161.00	1,805	$\frac{1}{2}$ inch	175.00	1,900	20 x 4	160
24 x 48 inches.....	$\frac{3}{8}$ inch	168.00	1,875	$\frac{1}{2}$ inch	184.00	1,975	20 x 4	160
24 x 54 inches.....	$\frac{3}{8}$ inch	175.00	1,950	$\frac{1}{2}$ inch	193.00	2,050	20 x 4	160
24 x 60 inches.....	$\frac{3}{8}$ inch	182.00	2,025	$\frac{1}{2}$ inch	207.00	2,125	20 x 4	160
30 x 36 inches.....	$\frac{1}{2}$ inch	207.00	2,455	$\frac{3}{4}$ inch	236.00	2,750	20 x 4	160
30 x 42 inches.....	$\frac{1}{2}$ inch	215.00	2,540	$\frac{3}{4}$ inch	250.00	2,870	20 x 4	160
30 x 48 inches.....	$\frac{1}{2}$ inch	223.00	2,620	$\frac{3}{4}$ inch	263.00	2,990	20 x 4	160
30 x 54 inches.....	$\frac{1}{2}$ inch	231.00	2,700	$\frac{3}{4}$ inch	277.00	3,210	20 x 4	160
30 x 60 inches.....	$\frac{1}{2}$ inch	241.00	2,780	$\frac{3}{4}$ inch	292.00	3,400	20 x 4	160
36 x 42 inches.....	$\frac{1}{2}$ inch	253.00	3,100	$\frac{3}{4}$ inch	288.00	3,500	22 x 5	160
36 x 48 inches.....	$\frac{1}{2}$ inch	264.00	3,300	$\frac{3}{4}$ inch	304.00	3,750	22 x 5	160
36 x 54 inches.....	$\frac{1}{2}$ inch	275.00	3,500	$\frac{3}{4}$ inch	316.00	4,000	22 x 5	160
36 x 60 inches.....	$\frac{1}{2}$ inch	286.00	3,750	$\frac{3}{4}$ inch	334.00	4,250	22 x 5	160
36 x 66 inches.....	$\frac{1}{2}$ inch	297.00	3,900	$\frac{3}{4}$ inch	349.00	4,500	22 x 5	160
36 x 72 inches.....	$\frac{1}{2}$ inch	315.00	4,100	$\frac{3}{4}$ inch	366.00	4,750	22 x 5	160
42 x 48 inches.....	$\frac{1}{2}$ inch	364.00	4,465	$\frac{3}{4}$ inch	410.00	4,975	24 x 6	135
42 x 54 inches.....	$\frac{1}{2}$ inch	376.00	4,700	$\frac{3}{4}$ inch	430.00	5,150	24 x 6	135
42 x 60 inches.....	$\frac{3}{4}$ inch	447.00	5,425	1 inch	528.00	5,800	24 x 6	135
42 x 66 inches.....	$\frac{3}{4}$ inch	465.00	5,700	1 inch	554.00	6,100	24 x 6	135
42 x 72 inches.....	$\frac{3}{4}$ inch	485.00	6,050	1 inch	580.00	6,500	24 x 6	135
48 x 54 inches.....	$\frac{3}{4}$ inch	485.00	5,275	1 inch	574.00	5,960	30 x 6	135
48 x 60 inches.....	$\frac{3}{4}$ inch	510.00	5,500	1 inch	600.00	6,300	30 x 6	135
48 x 66 inches.....	$\frac{3}{4}$ inch	534.00	5,800	1 inch	632.00	6,600	30 x 6	135
48 x 72 inches.....	$\frac{3}{4}$ inch	554.00	6,100	1 inch	668.00	7,000	30 x 6	135
48 x 78 inches.....	$\frac{3}{4}$ inch	576.00	6,400	1 inch	704.00	7,300	30 x 6	135

The above prices do not include either tight and loose pulleys or friction clutch pulleys. If these are wanted, add the prices given below for each size mill to the list prices given above.

The prices above cover the mills with hardwood trunnion bearings. If ring-oiling bearings are desired, add the prices given below for these items to the prices above.

Size of Mill	18"	20"	24"	30"	36"	42"	48"
Add for Tight and Loose Pulley.....	\$8.00	\$8.75	\$11.00	\$11.00	\$15.00	\$18.00	\$26.00
Add for Friction Clutch Pulley.....	28.00	28.00	30.00	30.00	34.00	34.00	46.00
Add for Ring-oiling Bearings.....	4.00	4.00	6.00	8.00	10.00	12.00	12.00

# BUCKEYE NON-EXHAUST STAVE MILLS

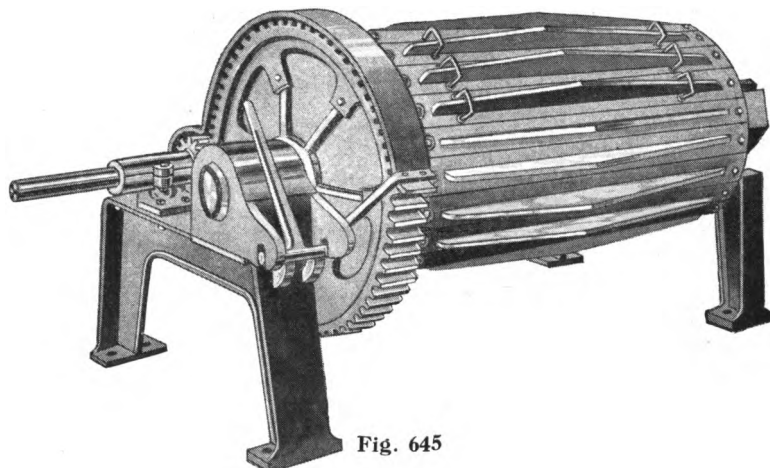


Fig. 645

The Buckeye Non-Exhaust Stave Mill is adapted for all classes of cleaning-room work, and is heavily constructed throughout, so that it will withstand the most severe service.

The heads are constructed of close-grained grey iron, and are protected from wear inside by heavy, hard, semi-steel renewable liners or heads. This construction greatly increases the life of the mill. The trunnions are cast on the heads, and run in ring-oiling chilled boxes, and if kept supplied with oil will show no perceptible wear.

The body is constructed of either heavy steel channel staves or heavy cast iron staves, which are reinforced by an arched rib running the length of the stave. The staves are securely bolted to the flanges of the heads, making a very rigid body. Several of the staves are slotted and fitted with handles, so they can easily be removed for loading and unloading the mill.

The mill is driven by means of spur gear and pinion of very liberal design, which minimizes wear. The gear is machined and is fitted to machined pads on the head, which insures a true running mill.

Buckeye Stave Mills with both cast iron staves and channel steel are made in the following range of sizes:

Diam.		LENGTHS				
24	36	42	48	54	60-72	
30	42	48	54	60	72	
36	42	48	54	60	72	
42	48	54	60	72	78	

Prices on request.

BUCKEYE SQUARE EXHAUST MILLS

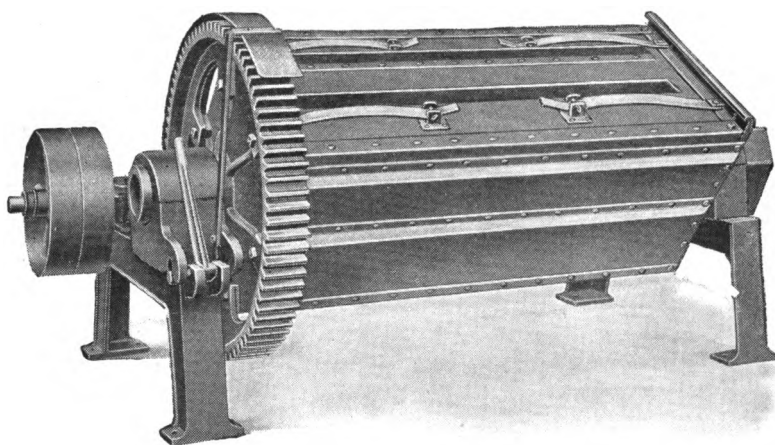


Fig. 646

The general specifications and construction of Buckeye Square Exhaust Mills are practically the same as Buckeye Reliable Mills, the difference being in shape of Shell only.

Buckeye Square Mills are particularly adapted for cleaning light plate and grill castings, such as stove-plate castings, etc., which are rather easily broken.

The Gearing, Shafting, and Trunnions are the same as the Reliable Mill. The Shell is made in the same gauges of material; Corners and Plates are reinforced with angle iron securely bolted to shell.

The door is fastened with Spring Steel. To open Mill it is only necessary to pull out pins, pull spring steel aside which works on bolt, and lift door out.

Buckeye Square Mills are made in a wide range of sizes, as follows:

Diam.	Lengths						
24"	24	30	42	48	54	60	66
30"	30	42	48	54	60	66	72
36"	30	42	48	54	60	66	72
42"	30	42	48	54	60	66	72
48"	48	54	60	66	72		

Prices on application

## The Morse Rarefied Dust Collectors

**For Emery Wheels, Polishers, Sand Blast, and  
Tumbling Mills**

As the name implies, this new type of collector operates on the rarefied or partial vacuum principle, the collector being positioned between the source of dust supply and the fan, so that the fan draws air through the collector and maintains a constant vacuum tendency in the collecting casing. By this arrangement a separation of the material from the air current is secured before the air reaches the fan. For use in connection with emery wheels, tumbling mills, sand blasts, etc., and in handling all products of metallic or flinty character, this feature of the "Rarefied" is particularly valuable, as the abrasion on the fan parts is practically eliminated, while the principle of operation is such that there is no undue wear on the collector parts.

This collector is built of galvanized sheet steel, with angle iron rings. All parts riveted two-inch centers. Gauge of steel used depends on suction required to do the work and class of material to be handled.

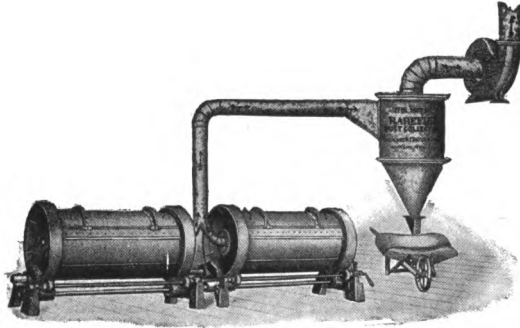


Fig. 647

The "Rarefied" will collect all material heavier than air. It will successfully handle light dust of 300 to 400-mesh, but some of the still lighter portions that amount to nothing more than a stain will escape, and this stain will discolor the fan exhaust more or less, depending on the nature of the dust to be handled. For this reason the exhaust of fan is always to atmosphere, and should be piped above the roof and adjacent windows to dissipate itself in the air.

THE MORSE RAREFIED DUST COLLECTOR

DIMENSIONS, PRICES, ETC.

No.	Height Top Wall	Length of Cone	L'gth of Trap	Height Over All	Outside Diameter	Inlet Opening	Area	Dim. Outlet Leading to Fan	Diameter Dust Outlet	List Price
2	15 1/2"	11 1/2"	10 1/2"	3' 1 1/2"	15 "	1 3/4" x 8 1/2"	15 "	2"	2"	\$75.00
3	18 "	13 1/2"	10 1/2"	3' 6 "	17 "	2 1/4" x 10 "	22 1/2"	3"	3"	80.00
4	20 1/2"	15 1/2"	10 1/2"	3' 10 1/2"	19 "	2 3/4" x 11 1/2"	31 1/2"	4"	3"	85.00
5	23 "	17 1/2"	10 1/2"	4' 3 "	21 "	3 1/4" x 13 "	42 "	5"	3"	90.00
6	2' 1 1/2"	19 1/2"	10 1/2"	4' 7 1/2"	1' 11 "	3 1/2" x 14 1/2"	51 "	6"	3"	100.00
7	2' 4 "	21 1/2"	10 1/2"	5' 0 "	2' 1 "	4 " x 16 "	64 "	7"	3"	120.00
8	2' 6 1/2"	22 "	11 1/2"	5' 4 "	2' 3 "	4 1/4" x 17 1/2"	79 "	8"	4"	135.00
9	2' 10 "	2' 0 "	11 1/2"	5' 9 1/2"	2' 5 "	5 " x 20 "	100 "	9"	4"	150.00
10	3' 0 1/2"	2' 2 "	11 1/2"	6' 2 "	2' 7 "	5 1/2" x 21 1/2"	118 1/2"	10"	4"	170.00
11	3' 3 "	2' 4 "	11 1/2"	6' 6 1/2"	2' 9 "	6 " x 23 "	138 "	11"	4"	190.00
12	3' 5 1/2"	2' 5 "	13 "	6' 11 1/2"	2' 11 "	6 1/2" x 24 1/2"	159 1/2"	12"	5"	205.00
13	3' 8 "	2' 7 "	13 "	7' 4 "	3' 1 "	7 " x 26 "	182 "	13"	5"	220.00
14	3' 10 1/2"	2' 9 "	13 "	7' 8 1/2"	3' 3 "	7 1/2" x 27 1/2"	206 1/2"	14"	5"	240.00
15	4' 1 "	2' 11 "	13 "	8' 1 "	3' 5 "	8 " x 29 "	232 "	15"	5"	255.00
16	4' 3 1/2"	3' 0 "	14 1/2"	8' 6 "	3' 7 "	8 1/2" x 30 1/2"	259 1/2"	16"	6"	270.00
17	4' 6 "	3' 2 "	14 1/2"	8' 10 1/2"	3' 9 1/2"	9 " x 32 "	288 "	17"	6"	285.00
18	4' 8 1/2"	3' 4 "	14 1/2"	9' 3 "	3' 11 1/2"	9 1/2" x 33 1/2"	318 1/2"	18"	6"	305.00
19	4' 11 "	3' 6 "	14 1/2"	9' 7 1/2"	4' 1 1/2"	10 " x 35 "	350 "	19"	6"	320.00
20	5' 1 1/2"	3' 7 "	16 "	10' 0 1/2"	4' 3 1/2"	10 1/2" x 36 1/2"	383 1/2"	20"	7"	340.00
21	5' 4 "	3' 9 "	16 "	10' 5 "	4' 5 1/2"	11 " x 38 "	418 "	21"	7"	355.00
22	5' 6 1/2"	3' 11 "	16 "	10' 9 1/2"	4' 7 1/2"	11 1/2" x 39 1/2"	454 1/2"	22"	7"	375.00
23	5' 9 "	4' 0 "	16 "	11' 1 "	4' 9 1/2"	12 " x 41 "	492 "	23"	7"	390.00
24	5' 11 1/2"	4' 3 "	16 "	11' 6 1/2"	4' 11 1/2"	12 1/2" x 42 1/2"	531 1/2"	24"	7"	405.00
25	6' 2 "	4' 5 "	16 "	11' 11 "	5' 1 1/2"	13 " x 44 "	572 "	25"	7"	420.00
26	6' 4 1/2"	4' 7 "	16 "	12' 3 1/2"	5' 3 1/2"	13 1/2" x 45 1/2"	614 1/2"	26"	7"	440.00
27	6' 7 "	4' 9 "	16 "	12' 8 "	5' 5 1/2"	14 " x 47 "	658 "	27"	7"	455.00
28	6' 9 1/2"	4' 10 "	17 1/2"	13' 1 "	5' 7 1/2"	14 1/2" x 48 1/2"	703 1/2"	28"	8"	475.00
29	7' 0 1/2"	5' 0 "	17 1/2"	13' 6 "	5' 9 1/2"	15 " x 50 1/2"	757 1/2"	29"	8"	495.00
30	7' 3 "	5' 3 "	17 1/2"	13' 11 1/2"	5' 11 1/2"	15 1/2" x 52 "	813 "	30"	8"	510.00
31	7' 5 1/2"	5' 5 "	17 1/2"	14' 4 "	6' 1 1/2"	16 " x 53 1/2"	864 "	31"	8"	525.00
32	7' 8 "	5' 7 "	17 1/2"	14' 8 1/2"	6' 3 1/2"	16 1/2" x 55 "	907 "	32"	8"	540.00
33	7' 10 1/2"	5' 9 "	17 1/2"	15' 1 "	6' 5 1/2"	17 " x 56 1/2"	960 "	33"	8"	560.00
34	8' 1 "	5' 11 "	17 1/2"	15' 5 1/2"	6' 7 1/2"	17 1/2" x 58 "	1015 "	34"	8"	575.00
35	8' 3 1/2"	6' 1 "	17 1/2"	15' 10 "	6' 9 1/2"	18 " x 59 1/2"	1071 "	35"	8"	595.00
36	8' 6 "	6' 3 "	17 1/2"	16' 2 1/2"	6' 11 1/2"	18 1/2" x 61 "	1107 "	36"	8"	610.00
37	8' 8 1/2"	6' 5 "	17 1/2"	16' 7 "	7' 1 1/2"	19 " x 62 1/2"	1180 "	37"	8"	625.00
38	8' 11 "	6' 7 "	17 1/2"	16' 11 1/2"	7' 3 1/2"	19 1/2" x 64 "	1248 "	38"	8"	640.00
39	9' 1 1/2"	6' 9 "	17 1/2"	17' 4 "	7' 5 1/2"	20 " x 65 1/2"	1310 "	39"	8"	660.00
40	9' 4 "	6' 11 "	17 1/2"	17' 8 1/2"	7' 7 1/2"	20 1/2" x 67 "	1373 "	40"	8"	675.00

## Dust Collectors



Fig. 648

### Sturtevant Dust Collector (Left Hand)

Sturtevant dust collectors, used for collecting dust from planing mills, buffing and polishing wheels or from other collecting systems are built of galvanized steel of heavy gauge, with weather-proofed seams securely riveted together.

The dust laden air enters tangentially through the rectangular inlet and flows around the interior of the collector, the solid particles being separated by centrifugal force and dropping to the bottom where they are discharged from the dust outlet. The air escapes through the air outlet at the top of the collector. The size of the Sturtevant collector and the area of the air outlet are such as to maintain a minimum resistance, reducing the amount of power necessary to drive the fan.

Collectors are built either right or left hand. Special construction may be furnished for handling very abrasive material. Collectors larger than those listed can be furnished for special work. The size number is the diameter of a round pipe equivalent in area to the inlet opening.

### SIZE, WEIGHTS, PRICE

Size No.	Size of Inlet Inches		Dia. of Head Inches	Height Including Hood		Dia. of Dust Outlet Inches	Weight Lbs. Not Packed	Price
	Width	Height		Ft.	In.			
4	2	7	24	3	10 <sup>3</sup> / <sub>8</sub>	2	45	\$ 15
5	2 <sup>1</sup> / <sub>4</sub>	9 <sup>1</sup> / <sub>2</sub>	28	4	6 <sup>1</sup> / <sub>8</sub>	3	60	20
6	3	10	30	4	10 <sup>3</sup> / <sub>8</sub>	4	65	40
7	3 <sup>1</sup> / <sub>2</sub>	11	36	6	1 <sup>1</sup> / <sub>4</sub>	6	110	60
8	4 <sup>1</sup> / <sub>2</sub>	13	42	6	11 <sup>3</sup> / <sub>8</sub>	6	135	80
9	6	13	46	7	7 <sup>1</sup> / <sub>8</sub>	6	170	90
10	6	15	50	8	6 <sup>3</sup> / <sub>8</sub>	10	200	125
12	7 <sup>1</sup> / <sub>2</sub>	17	56	8	10 <sup>1</sup> / <sub>4</sub>	10	250	175
14	8 <sup>1</sup> / <sub>2</sub>	19	64	9	8 <sup>3</sup> / <sub>8</sub>	10	370	200
16	9	24	72	10	8 <sup>3</sup> / <sub>8</sub>	12	440	225
18	9	30	80	12	0 <sup>1</sup> / <sub>2</sub>	12	605	250
20	10	33	88	13	4	12	715	275
22	12	33	96	14	5	14	1040	350
24	12	39	104	15	7 <sup>3</sup> / <sub>8</sub>	14	1200	400
26	14	41	108	16	4 <sup>1</sup> / <sub>2</sub>	14	1325	475
28	15	42	112	17	1 <sup>1</sup> / <sub>4</sub>	14	1525	550
30	16	45	120	18	2	16	2400	600
32	17	48	128	19	5 <sup>1</sup> / <sub>2</sub>	16	2450	700
34	18	51	136	20	8 <sup>3</sup> / <sub>8</sub>	16	2750	800
36	19	54	144	21	11 <sup>1</sup> / <sub>8</sub>	16	2850	900
38	20	57	152	23	0 <sup>3</sup> / <sub>8</sub>	18	3075	1000
40	22	60	160	25	8 <sup>1</sup> / <sub>2</sub>	18	4425	1200
46	27	65 <sup>1</sup> / <sub>2</sub>	164	26	2	18	4660	1300
50	32	71	168	26	8	18	4780	1500



# Volume Exhausters

SPEEDS, CAPACITIES, AND HORSEPOWER  
VOLUME EXHAUSTERS

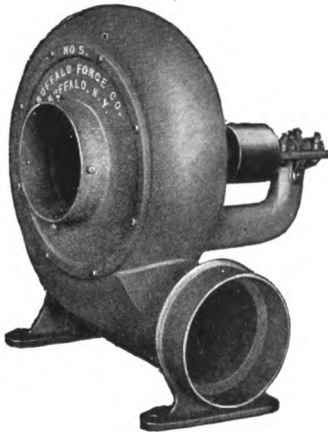


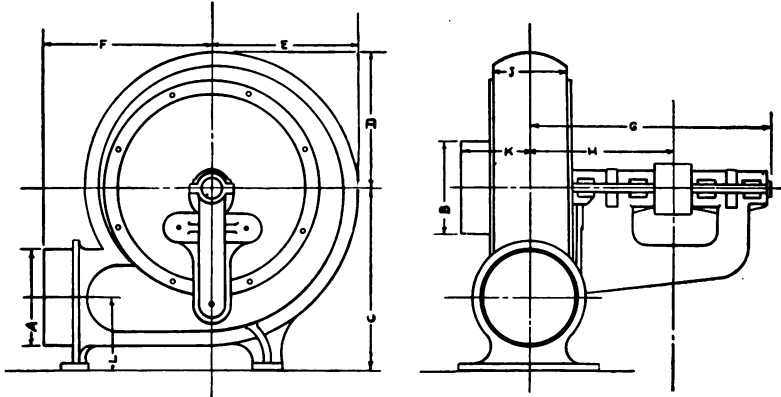
Fig. 649

No. of Blower	1/2 OZ.			1 OZ.			2 OZ.		
	R. P. M.	Cap.	H. P.	R. P. M.	Cap.	H. P.	R. P. M.	Cap.	H. P.
1	1693	104	.023	2396	148	.074	3393	210	.233
2	1397	264	.059	1976	374	.187	2800	534	.593
3	980	438	.098	1387	621	.310	1965	888	.987
4	859	585	.130	1216	828	.414	1724	1174	1.300
5	776	837	.186	1098	1185	.593	1556	1688	1.870
6	635	1185	.263	898	1677	.839	1274	2382	2.650
7	582	1372	.305	823	1941	.971	1168	2752	3.060
8	499	1986	.440	706	2810	1.405	1001	3983	4.430
9	411	3299	.733	581	4668	2.334	824	6641	7.300
10	349	4488	.997	494	6350	3.175	702	9003	9.900

No. of Blower	3 OZ.			4 OZ.			6 OZ.		
	R. P. M.	Cap.	H. P.	R. P. M.	Cap.	H. P.	R. P. M.	Cap.	H. P.
1	4169	258	.382	3977	753	1.37	3436	1552	3.86
2	3437	651	.964	2794	1261	2.29	3015	2051	5.13
3	2414	1090	1.615	2452	1667	3.03	2721	2948	7.37
4	2119	1441	2.135	2212	2397	4.36	2225	4160	10.40
5	1912	2071	3.08	1809	3382	6.15	2014	4806	12.00
6	1563	2923	4.33	1660	3908	7.10	1740	6957	17.40
7	1434	3377	5.00	1422	5656	10.20	1440	11599	28.90
8	1229	4888	7.24	1171	9431	17.10	1225	15726	37.00
9	1012	8150	12.10	966	12786	21.90			
10	861	11050	15.00						

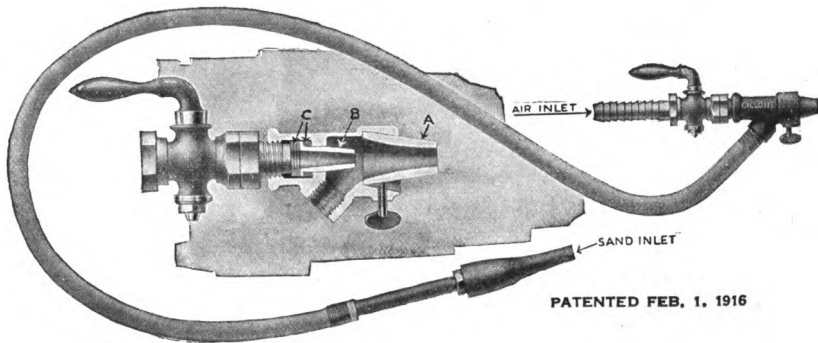
These Volume Exhausters are successfully used for exhausting smoke and gases from forges, removing dust from sand-blast room, emery-wheel grinders, and for other similar uses which are too numerous to mention. If you have a problem of this kind, write us, giving full details.



RIGHT-HAND BOTTOM HORIZONTAL DISCHARGE

No.	C and D	E and F	G and K	Hand K	A		B	Weight	Pulley	
									Diam.	Face
000	14 3/4	14 13-16	14 3/4	10 1/2	5 5/8	5 1-16	45	2 3/4	2 1/4	
1	16 1/2	17	14 5/8	11 3/8	4 7/8	5 3/4	60	3	2 1/2	
2	20 1/2	20 11-16	19 1/2	14 1/4	6 1-16	6 1-16	100	3 1/4	2 5/8	
3	24 15-16	25 3-16	24	17	7 5/8	7 1/2	170	4	3	
4	27 15-16	27 1/2	25 3/8	17 3/4	9	9	200	5	3 3/4	
5	31 5/8	31 5/8	30 3/4	21 1/4	10 5/8	10 5/8	275	5 3/4	4 5/8	
6	36 1/8	37 7-16	32 3/4	22 3/4	11 13-16	12 3/8	380	6 1/2	5 1/2	
7	42 5/8	42 5/8	36 7/8	25 3/8	14	14	575	7 1/2	6 1/4	
8	47 3/8	46 5/8	42 1/4	27 3/8	16 3/8	16	725	8 1/2	7 1/4	
9	55 1/8	55	48 3/8	32 1/8	17 3/8	17 1/4	1100	9 1/2	8 1/2	
10	68 3/8	63 3/8	51	37	21	21	1600	12	9 3/4	
11	73 3/8	83 3/4			24 1/2	24 1/2	3200	14	12	

**CYCLONE SUCTION SAND BLAST OUTFIT**



**Fig. 650**

The Cyclone Suction Sand Blast Outfit was designed primarily to take the place of the expensive tank outfit usually used in foundries and similar casting-cleaning plants.

It saves in the initial costs, is cheaper to operate in air consumption, and takes less time, on account of its lightness and ease of operation.

No sand tank to fill. Does not get out of order. Up-keep is practically nothing.

The cost of refurnishing sand blast hose used on tank outfits costs more than the complete Cyclone Suction Sand Blast Outfit.

No expensive sand hose is necessary, as the sand travels very slowly through the hose, therefore little wear.

Air may be used at all pressures common for other purposes.

To start, simply attach air hose and put the end of sand hose in pile of sand and open air valve.

All grades of sand can be used, but the best results are obtained by using a good, hard, washed quartz or silica sand, dried and screened through a six mesh for general work. Eight- or ten-mesh for fine work.

Sand blast helmet and gloves should be used to protect eyes and hands.

**As tip A wears opposite inlet, turn it.**

**Complete outfit, cyclone nozzle, fitted with air valve, sand hose, and sand blast helmet, gloves, and one inner and three extra outer tips, \$36.00.**

**Sand Blast Tips, per Hundred, \$6.00.**

**Try Our Sand Blast Sand.**

## The Buckeye Sand Blast. Type A

Design of Sizes No. 1 and No. 2

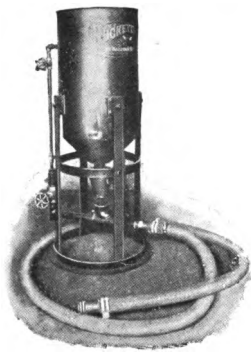


Fig. 651

The Type "A" Sand Blasts are the only machines built without a sand valve, yet can be set for any size nozzle.

One of the chief advantages of its use over other methods of cleaning is that it does the work thoroughly; it not only cleans better, but gives the work a brighter surface when finished.

The capacity of these machines will vary, according to the size, weight, and square feet of surface of the pieces to be cleaned.

It is advisable that the sand blast be located in a room by itself, which should be connected with an exhaust fan and dust collector. One man with sand blast can clean more castings than five men with brushes, and get at core work that otherwise would be impossible.

Another advantage is the saving on lathe and machine tools, as the grit and dirt is removed from all castings. This advantage alone will pay for the machine in time.

The tank is built out of heavy steel plates and strongly riveted. All parts are of extra thickness and strength, to stand the excessive wear and tear that a sand blast gets in actual practice.

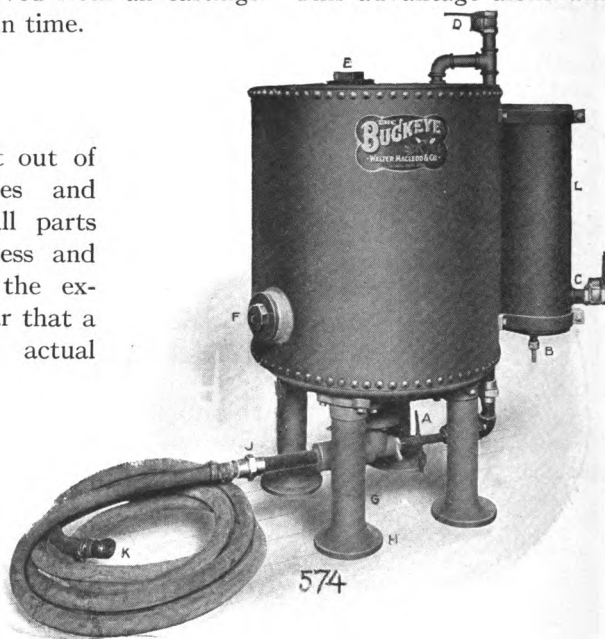


Fig. 652

Design of Sizes Nos. 3, 4, 5, and 6

## THE BUCKEYE SAND BLAST, TYPE "A"

### Quantity of Air and Pressure Required

A common pressure is from 60 to 80 pounds. It is much better to use, say, 70 pounds of pressure than 25 pounds, such as is used in some other machines, as the latter, to carry the same sand and air, would require larger size of hose and fittings and be much more bulky to handle.

**A Nozzle  $\frac{3}{16}$  inch diameter would require 50 cu. ft. per minute.**

“	“	$\frac{3}{8}$	“	“	“	“	85	“	“	“
“	“	$\frac{1}{2}$	“	“	“	“	125	“	“	“

### PRICES AND OTHER PARTICULARS

Size No.	Tank Capacity of Sand in Lbs.	Price of Designs Shown on Pages	Approximate Gross Weight in Lbs.	Excd, Cu. Ft.
1	300	\$150.00	250	20
2	600	240.00	450	30
3	1,000	300.00	900	54
4	2,000	420.00	1,200	70
5	4,000	540.00	1,500	110
6	8,000	750.00	3,000	160

Can arrange these sand blasts with two nozzles, and with two or four wheels for portability, if desired.

Included in the price with each sand blast is the following: Tank of the capacity named, with all valves and fittings; special hose, having a pure gum lining, as follows:  $12\frac{1}{2}$  feet, with sizes No. 1 and No. 2 and 25 with sizes Nos. 3, 4, 5, and 6.

Extra Nozzle Holder, a number of extra nozzles, head cover, and various sundries necessary for a complete outfit.

Any hose above the quantity named above will be charged for extra.

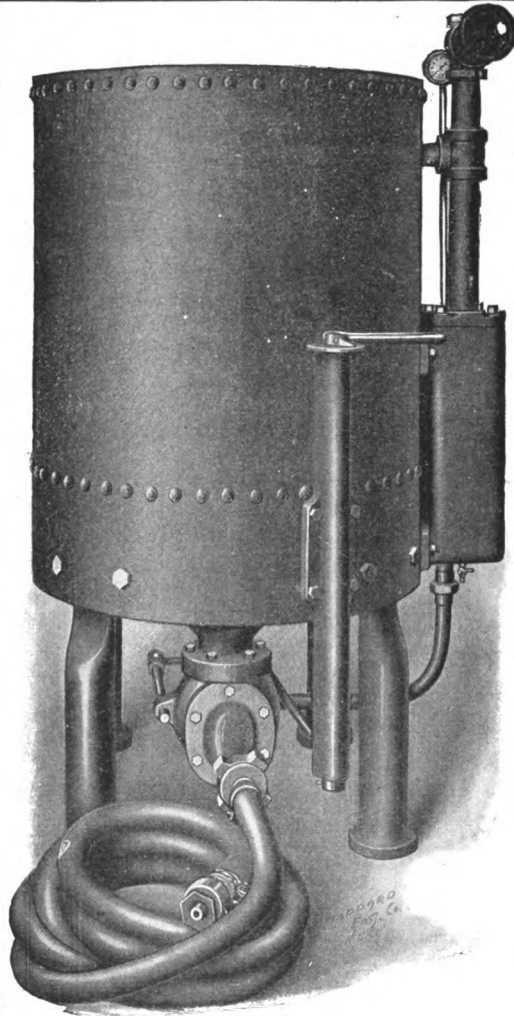
## THE BUCKEYE SAND BLAST, TYPES "B" AND "C"

Type "B" has a wide spray or blast, and is intended for lighter abrasive action than Style "A." The nozzle, however, can be adjusted.

Type "C" has a smaller spray than Type "B," but is more centralized, will work with less air than Type "B," and is especially adapted for small work.

Write for Sand Blast Booklet.

NEW HAVEN  
AUTOMATIC  
SAND BLAST  
MACHINE



For High or  
Low Pressure

Fig. 653

STANDARD MACHINES

No. 3—30 inches by 30 inches.	Height top of tank, 57 inches.
No. 4—36 inches by 36 inches.	Height top of tank, 63 inches.
No. 5—42 inches by 42 inches.	Height top of tank, 69 inches.

Equipment furnished with either high or low-pressure machines.

20-ft. Special S. B. Hose.	1 pair Pigskin Gloves.
150 $\frac{1}{4}$ -in., $\frac{3}{8}$ -in., or $\frac{1}{2}$ -in. Sand Nozzles.	3 Hose Connection Gaskets.
2 Operator's Hoods.	6 Nozzle Gaskets.
2 Respirators.	1 Reducing Nozzle Gasket.
	1 Mixing Chamber Gasket.

Unless otherwise specified,  $\frac{1}{4}$ -inch Sand Nozzles will be shipped with high-pressure machines, and  $\frac{3}{8}$ -inch with low-pressure machines.

## NEW HAVEN AUTOMATIC SAND BLAST MACHINE

The illustration on previous page shows the latest type of New Haven Automatic Sand Blast Machine.

Contrary to the ideas of many, a rubber hose connected to tank containing sand combined with compressed air does not constitute a sand-blast machine. The combination of the mixing-chamber with the method employed to allow an **EVEN** and **PROPER AMOUNT** of sand to mix with the air as it enters the chamber are the vital factors, and upon them rest the responsibility of efficiency and successful operation of the machine.

The method used in operation is not a copy of other ideas, but is distinctly original, and originated for overcoming the detrimental points in other methods.

The mixer chamber where the sand and air combine is subject to most wear. The lining in this chamber is interchangeable, and when worn can be readily replaced at very small cost.

To overcome these conditions, The New Haven Automatic Sand-Blast Machine is designed with an interchangeable lining to mixing-chamber, made from hard iron, which may be replaced in a very few moments. This feature eliminates the replacement of entire mixing chamber.

When machine is first placed in operation the sand valve is adjusted until the proper amount of sand is entering mixing chamber and allowed to remain in this position. After this is adjusted it is controlled entirely by air valve.

The sand flows and stops automatically. The moment air is turned on, the machine is in full operation and the proper amount of sand is entering the mixing chamber at all times. No stopping of machine so operator can adjust the flow of sand to get proper mixture.

The simplicity of this machine enables it to be operated by anyone regardless of experience.

A principle involved is that, regardless of how wide the sand valve is opened, it is impossible for any sand to enter the chamber until that which is inside has passed into the hose. This principle prevents sand from clogging.

By careful study and experience this machine has been brought to a high state of perfection, eliminating the high cost of maintenance.

**We furnish Sand-blast Sand that is hard, sharp, and of good cutting quality. Send for samples.**

No. 3.—Price.....	\$467.50
No. 4.— “ .....	635.00
No. 5.— “ .....	770.00

## BUCKEYE SAND BLAST TUMBLING BARREL

### Suction or Syphon Type

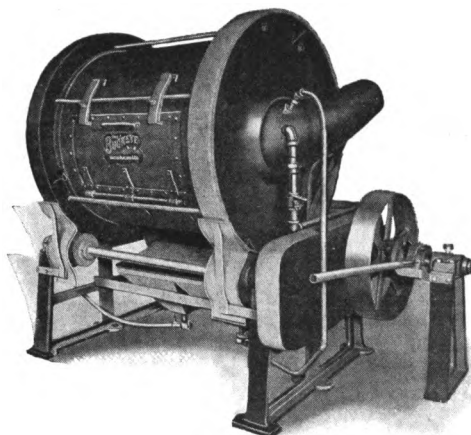


Fig. 654

For cleaning quantities of small castings this is the ideal method.

The barrel is filled about one-third full and revolved very slowly, about two revolutions per minute, and in five to thirty minutes castings are cleaned. Due to the slow speed at which the barrel is run, the breakage of fragile castings is reduced to a minimum. The sharp edges are retained and the sand blast has reached all portions of the castings. Barrel should be connected

with exhaust fan. It has automatic action, sifts, collects, and re-uses the sand.

There are no projecting nozzles to lock castings. Nozzles are easily and quickly accessible for replacement from outside of barrel.

Sharp angles and cores of small castings are cleaned just as effectually as other parts more accessible.

An ideal method of installation is to have two tumbling barrels, one barrel working while the other barrel is discharging and loading. Made in the following sizes:

No.....	307	286	286½	287	288	289
Diameter, inches....	16	24	30	36	48	60
Length, inches.....	16	24	30	36	42	48
Price.....	\$420.00	\$546.00	\$738.00	\$930.00	\$1650.00	\$3150.00

We can also furnish the following types Sand Blast Tumbling Barrels.

Gravity Feed Type, recommended for grey iron or malleable castings. Does away with pickling and leaves a good finish for plating, etc.

Positive Pressure Type, recommended for heavy malleable, grey iron and steel castings, drop forgings and case-hardened gears. Takes off every particle of scale, giving castings a fine appearance, and saves time machining.

Special Circular sent on request covering these types in detail.

NEW HAVEN SELF-CONTAINED SAND BLAST BARRELS

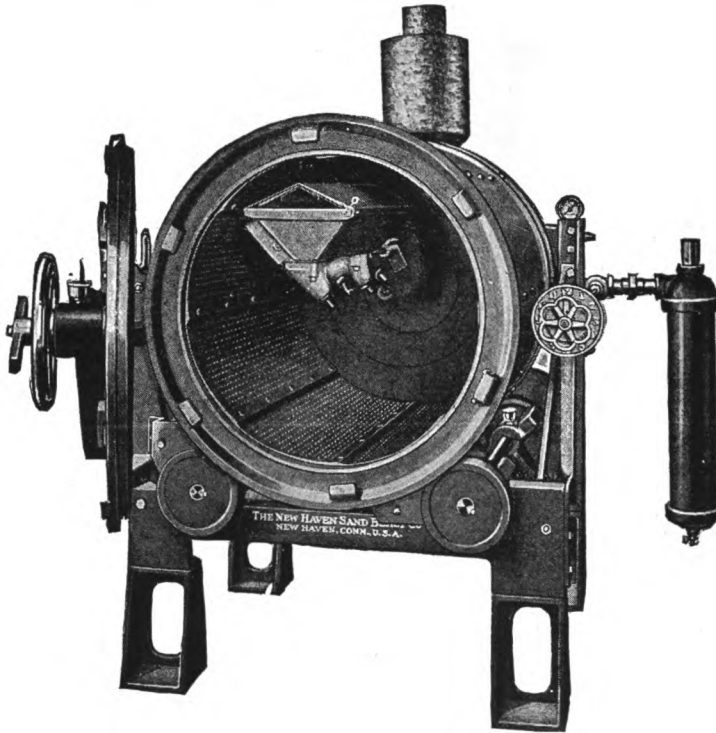


Fig. 655

The Self-Contained Sand Blast Barrel shown above confines the entire operation of sand blasting and recovery of sand inside the barrel.

It is low in cost of maintenance, as the cleaning abrasive never leaves the barrel.

It is simple, durable in construction, economical, and speedy in operation.

The wear is confined principally to the inside of barrel, which is made interchangeable, and may be easily replaced and at small cost.

Average capacity, from three to six tons per day.

Furnished for high or low pressure. The maximum amount of air that can pass through the four nozzles is 151 cubic feet per minute at 60 pounds pressure. This amount of air is always maintained, as the sand does not pass through the air nozzles to wear them away.

Price, \$1350.00

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## Sand Dryer



Fig. 656

The above is a cut of the Complete Sand Dryer. The wet sand is shoveled into the skirting, and as it dries will of itself run through the holes in the ring at the bottom of the skirting. The amount of sand the stove will dry depends on how wet the sand is and on the condition of the fire in the stove. The stove may be fed with hard or soft coal, coke, or wood. Clear sand only can be used. Earth or clay would bake hard, and so fail to run through holes in the ring.

Capacity under ordinary conditions: No. 1 dries about ten tons daily; No. 2, about 5 tons daily; No. 1 weighs approximately 1,200 pounds; No. 2 weighs approximately 700 pounds. No. 3 is two-thirds the size and capacity of No. 2.

	DIMENSIONS:		
Extreme height of Sand Driers, inches.....	No. 1 58	No. 2 49½	No. 3 48¾
Height from base to top, inches.....	48	40	38¾
Height of legs, inches.....	10	10	10
Size of Fire Door, inches.....	10 x 12	10 x 12	11 x 11
Inside diameter, inches.....	23	17	15
Grate diameter, inches.....	22	15	12½
Skirting at top—diameter, inches.....	52	40	39
Distance from inside Fire Door to back of Stove, inches.....	33	27	23¾
Thickness of castings, inches.....	1¼	¾	¾
Approximate capacity, cubic feet of sand.....	18½	8½	7½

**PRICES :**  
 No. 1, \$75.00.      No. 2, \$60.00.      No. 3, \$40.00.

## Curtis Model "A" Air Compressors

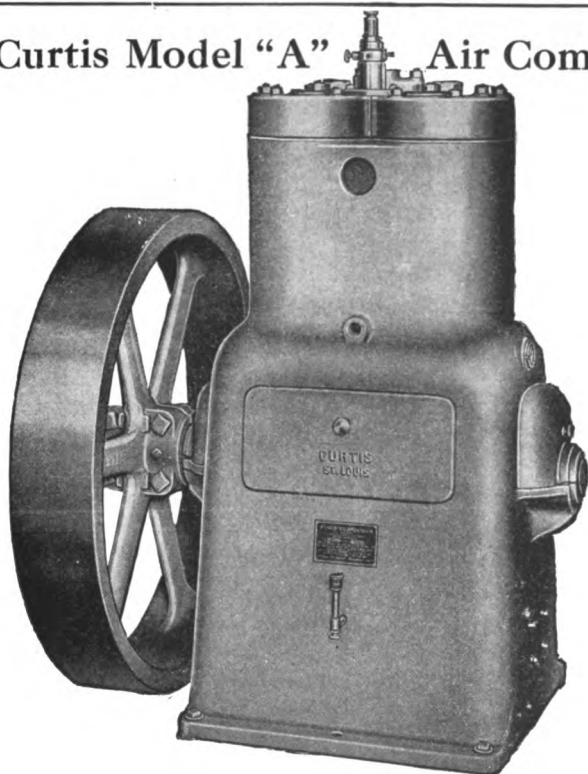


Fig. 657

### **Controlled; Splash-oiling; Fully Enclosed; Dust and Dirt-proof**

**DESIGN.**—All Curtis Air Compressors are made in the same general design—vertical, single-acting, single-stage compression. By close attention to details in twenty-two years of manufacturing, a simple, durable, and economical compressor has been produced which fulfills its purpose to furnish air at the lowest possible cost for power and maintenance.

**CAPACITY.**—Large port areas, light valves, small clearances, bring the capacity of our machines, which can be run at high speeds, to about 95 per cent of piston displacement. By test, compressors of other manufacture showed 88 to 90 per cent.

**EFFICIENCY.**—Large water cooling jackets of cylinders and heads, large air passages, light valves, few parts to produce friction, and the proper lubrication of all moving parts gives highest possible efficiency.

**ATTENTION.**—As the machine is automatic and self-oiling, practically no attention is required. A skilled attendant is not needed. Oil level always visible in the high and low level oil filling gauge.

**CURTIS MODEL "A" AIR COMPRESSORS**

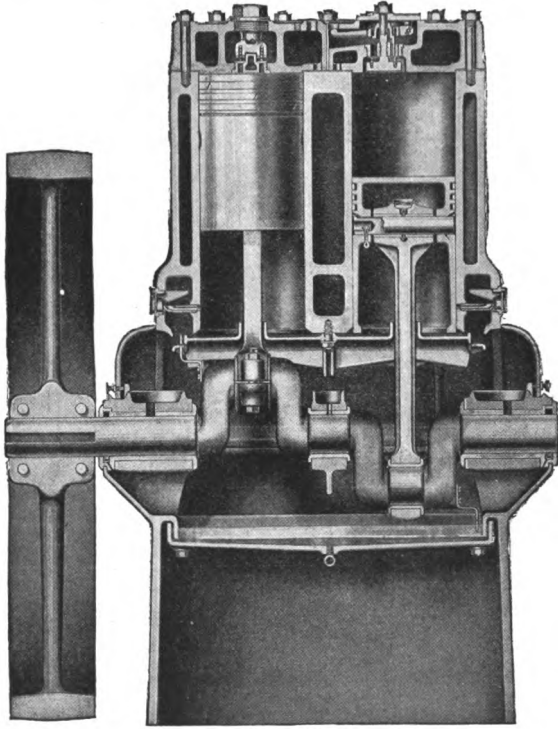


Fig. 658

**Full Self-oiling; Controlled-Splash; Cylinder Lubrication  
Regulated Through Sight Feed Glass**

Crank Shafts are of solid steel, not built up. They are of very large diameter, and run in self-oiling bearings.

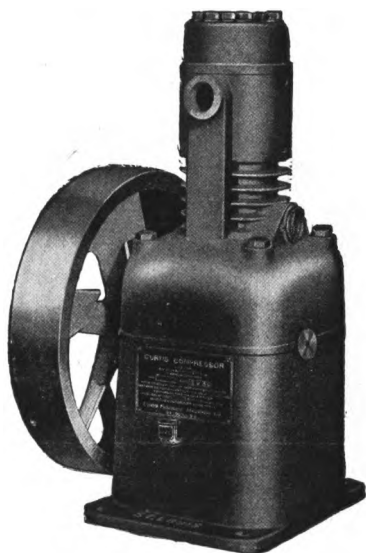
Piston Pins are case-hardened steel, ground to gauge, and of large diameter, positively and effectively lubricated.

Connecting Rods are of steel, with standard marine crank-ends with lock-nuts and lined with non-cutting anti-friction metal.

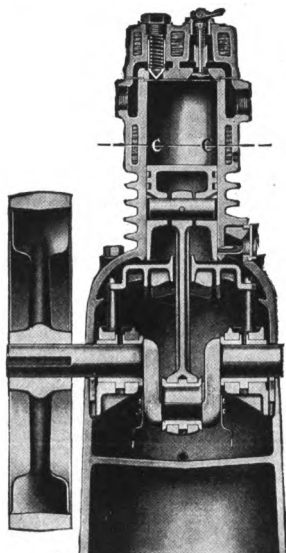
Lubrication is perfect, entirely automatic, and the amount of oil delivered to the cylinders is regulated through a sight-feed device. There are no oil nor grease-cups. The oil is put into the crank-case through a high and low-level oil-filling gauge, and it is never necessary to stop the machine at any time to adjust or refill the oiling system. This machine will run over ten times as long with the same amount of oil as any ordinary splash-oiling machine.

Dust and dirt do not affect machine; it is fully enclosed, has no cross-heads, stuffing-boxes, or other complicated parts, exposed or unexposed.

**CURTIS MODEL "A" AIR COMPRESSORS**



**Fig. 659**



**Fig. 660**

**Controlled; Splash-oiling; water-cooled.**

**All Instructions on Name Plate**

Regular compressors without loose pulleys are intended for continuous pumping service.

**COMPRESSORS WITH TIGHT AND LOOSE PULLEYS.**—If air is wanted for only a few hours per day, and the compressor is driven from line shaft, we recommend this type, as the machine can be stopped completely. Loose pulley is fitted with renewable bushing, so that the pulley itself never wears out.

**PIPE CONNECTIONS.**—The suction and discharge pipes are connected to the cylinder. The outlet of the water circulation system is through a manifold on top of the head at the highest point in the system, so that warm water is not trapped in the heads, and perfect cooling is insured. Pet cock for draining water jackets is provided. No pipe connections have to be broken to remove valves. Only water outlet connection needs to be broken to remove the heads.

CURTIS MODEL "A" AIR COMPRESSORS

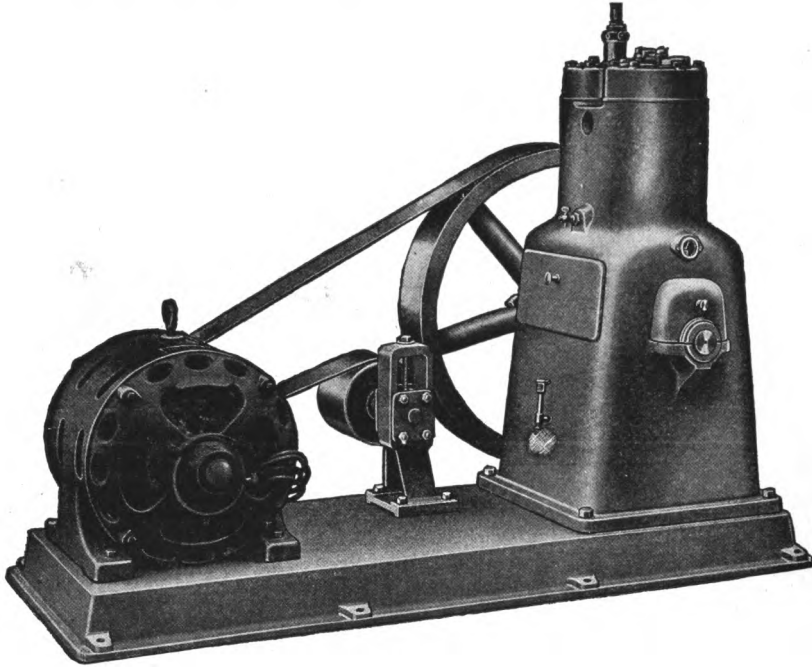


Fig. 661

**Compact; Self-contained; No Gear Trouble**

**ELECTRIC BELT DRIVE.**—We recommend the flat-belt type of electric drive as preferable to either the chain or gear drive, for it is more flexible, more nearly noiseless, less severe on the motor, also less expensive. Long belt centers should be used and a vertical drive avoided. Where the room is limited, the centers can be very short by using a belt-tightener. The above outfit occupies very little more space than a gear drive.

Where the gear drive is furnished we, however, supply cut fly-wheel gear and rawhide motor pinion with bronze flanges, to make the drive as nearly perfect as a gear drive can be made.

Iron base for the belted style is a convenience, but not a necessity, for the motor, compressor, and belt tightener can just as readily be mounted on any good foundation. An iron base, however, is necessary on a gear drive to insure proper and permanent alignment of the gears.

**BELT TIGHTENER.**—Long belt centers are always advisable, but when lack of space makes short centers necessary, a Curtis adjustable combination idler and belt tightener will enable a short and efficient belt drive to be obtained.

# CURTIS MODEL "A" AIR COMPRESSORS

TABLE OF MODEL "A" COMPRESSORS

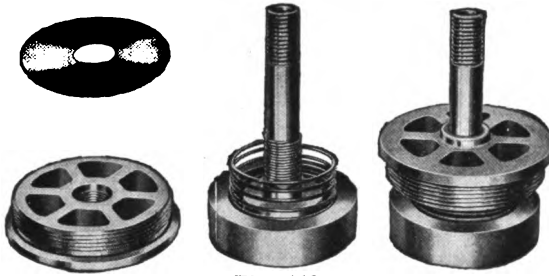
Compressor		R. P. M.		Capacity Cu. Ft. Free Air		Horse Power at Standard and Maximum Speeds		
Bore and Stroke, Inches	Sgl. or Dbl. Cyl.	Std.	Max.	Std. Speed	Max. Speed	80 Lbs. Pressure	100 Lbs. Pressure	Weight
4½x 4½	Sgl.	200	400	8.3	16.6	1.58-3.16	1.67-3.36	385
6 x 6	"	175	300	17.2	29.5	3.28-5.60	3.45-5.90	730
6 x 6	Dbl.	175	300	34.4	59.0	6.55-11.2	6.92-11.9	1,100
7 x 7	"	160	250	49.9	78.0	9.5-14.9	10.0-15.7	1,700
8 x 8	"	160	225	74.4	104.5	14.2-19.9	15.0-21.0	2,100
9 x 9	"	160	210	106.0	139.0	20.2-26.5	21.3-28.3	3,200
10 x10	"	160	200	145.5	182.0	27.7-34.6	29.3-36.6	4,000
12 x12	"	150	190	236.0	298.0	45.0-57.0	47.4-60.0	6,200

**HORSEPOWER REQUIRED.**—The horsepower figures given in above table are taken from actual tests of electric motors driving Curtis compressors under ordinary operative conditions, and are not theoretical. Curtis compressors require a minimum of power, as they have no cross-heads, slides, piston rods, nor stuffing boxes to produce mechanical friction; also, the location and construction of the valves reduce the air friction to a minimum.

**SPEEDS.**—The general design of our compressor, the lack of complicated and friction-producing small parts, the unusually large water jackets, and especially the valve construction permit our machine being operated at speeds at least as great, or in fact, 10 to 15 per cent greater than any other type of air compressor; but in order to reduce the wear and the heat generated, to increase the economy and efficiency of the machine, and to insure long life, we recommend the more conservative speeds rated in the table.

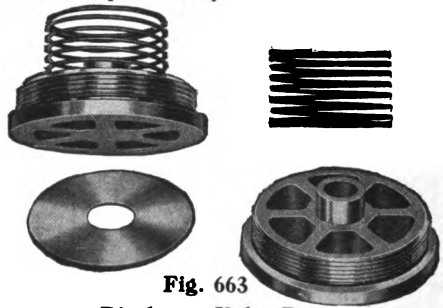
**FOUNDATION.**—As our compressors are self-contained, comparatively light foundations are required. Foundation drawings furnished with each compressor.

## CURTIS MODEL "A" AIR COMPRESSORS

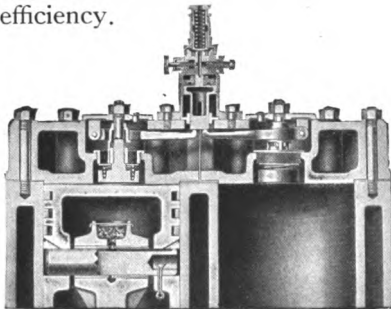


**Fig. 662**  
**Suction Valve Parts**  
**Simple, Compact, Accessible**

single-cylinder machines are poppet type, and in the larger machines are of the disc type. The discs are made of vanadium steel, tempered, ground, polished, with rounded edges, and set on a phosphor-bronze flat seat of large area, and can be removed independently of each other and without removing the cylinder heads to large contact surface with the seat. The valves are practically indestructible. We know of some Curtis valves that, at date of this printing, have been running twenty-three and a half hours per day for five years, and on last inspection practically no wear was discernible. Their lightness, small travel, and large port areas mean maximum efficiency.



**Fig. 663**  
**Discharge Valve Parts**  
**Large Ports, Large Seats**



**Fig. 664**

practically no power necessary—only enough to overcome mechanical friction. Hand by-pass valve allows compressor to be started and unloaded, even though there is full pressure in the tank.

### VALVES

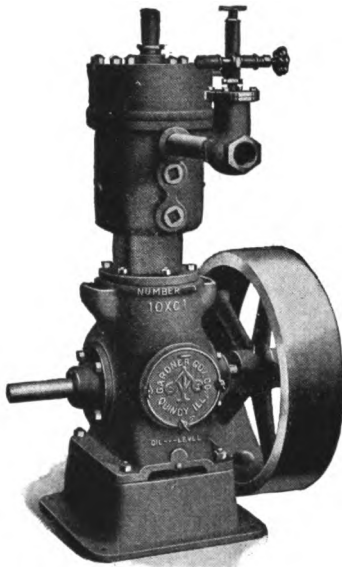
Valves are placed in the heads, thus utilizing to the greatest extent the cooling value of the water circulation, and also reducing the clearance to a minimum, and correspondingly increasing the efficiency of the compressor. The valves are noiseless, in the  $4\frac{1}{2} \times 4\frac{1}{2}$

### UNLOADER

Unloader automatically regulates the air pressure by unseating the suction valves when the maximum pressure in tank is reached.

The unloader can be set for any variation, from  $\frac{1}{2}$  to 10 pounds; that is, as soon as air pressure in tank drops, the unloader reseats the valves and compression is resumed.

No air is compressed; in the meantime the action of the flywheel is not stopped, nor belt shifted. There is



**Fig. 665**  
**Class "G"**

## GARDNER-RIX AIR COMPRESSORS

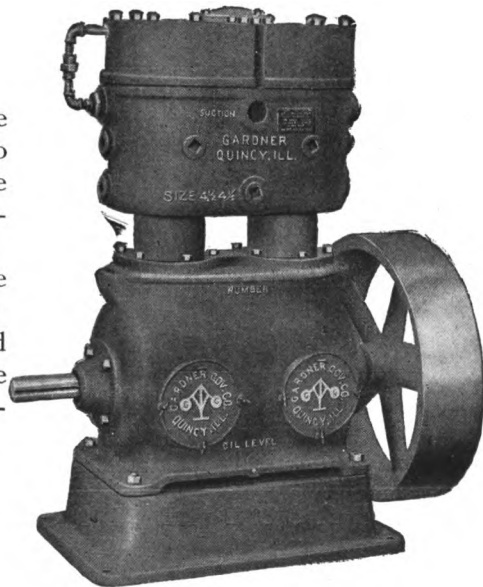
Gardner-Rix Air Compressors are particularly adapted for foundry use. These machines are built with enclosed cases and splash lubrication. They are so arranged that dust, dirt, and grit cannot get into the working parts of the machine. A minimum number of parts are used, which lessens the care necessary for the proper up-keep.

All Gardner-Rix Compressors are equipped with plate valves, which permit noiseless operation and maximum efficiency.

The cylinders and heads are thoroughly water jacketed, so that parts of compressor where heat is greatest receive the benefit of a cool supply of water.

All bearings are renewable die castings, which makes replacement simple. These and many other features have made the Gardner line the foundryman's compressor.

**Prices on application**



**Fig. 666**  
**Class "H"**



# GARDNER-RIX AIR COMPRESSORS

There is a Gardner Compressor for every foundry requirement. Should you require an air compressor with greater capacity than those shown in this list, we would refer you to the Gardner horizontal line of enclosed splash-lubricated machines. Data and description of the Gardner-Rix Air Compressors will be found in the following tabulated list:

SIZES, DIMENSIONS, AND CAPACITIES

Bore and Stroke	Maximum Pressure Designed for.....	Class .....	Revolutions Per Minute		Capacity—Cu. Ft. Free Air per Minute at Max. Speed.	Horsepower Required at Maxi- mum Speed and Various Pressures. Power Required for Other Speeds Will Vary Directly with the Speed.						Openings		Pulley		Floor Space	Height Over All Without Sub-Base	Shipping Weights, on Skids .....
			Lowest Speed .....	Highest Speed .....		Air Pressures						Suction .....	Discharge...	Diameter ...	Belt .....			
						20	40	60	80	100								
3 x3½	250	G	400	600	8	1	1¼	1½	1¾	2	¾	½	14	3	14x17	23½	165	
4½x4½	200	G	300	500	21	2	2½	3¼	4	4½	1¼	1	20	4½	20x23	33½	390	
6 x6	200	G	250	400	40	3	5	6½	7½	9	2	1½	26	5	26x32	41	800	
*8 x6	100	G	275	400	70	5½	8½	11	13	15	2½	2	30	6	30x38	41	1,150	
4½x4½	150	H	300	500	42	3	5	6½	7½	9	1¼	1	20	5	20x33	33½	700	
6 x6	125	H	250	400	80	6	10	13	15	18	2	1½	26	6	26x43	41½	1,400	
8 x6	125	H	275	400	140	11	17	22	26	30	2½	2	30	7	30x51	45½	1,900	

\*These sizes are fitted with the Gardner Duoplate Valves, the type used on Gardner Horizontal Compressors. These valves consist of concentric steel plates of uniform section and light weight, with a separate and independent plate over each port.

# GARDNER HORIZONTAL AIR COMPRESSORS

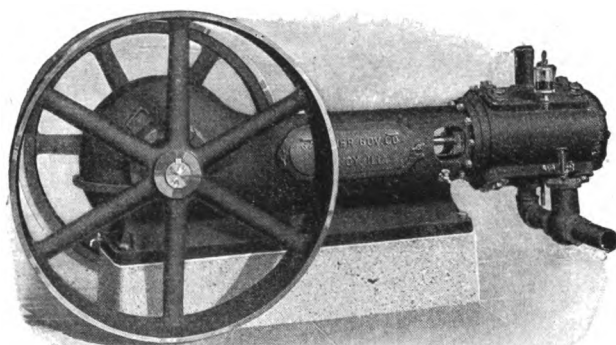


Fig. 667

Gardner single cylinder, enclosed type, center crank belt-driven compressor, class "B."

These compressors are built for belt and steam-drive in the single and two-stage types. The accompanying illustration shows single stage belt-driven air compressor.

Air-Cylinder			Cu. Ft. Dis- placement Per Minute Max. Speed	Maximum Pressure	H. P. Required at Maximum Pressure	Pipe Openings			Weights
Diameter	Stroke	Max. Speed Rev. Per Minute				Air Inlet	Air Outlet	Water	
6	6	330	65	125	11.0	1½	1½	½	1,500
7	6	330	88	100	14.4	2	1½	½	1,590
8	6	330	114	70	16.6	2½	2	½	1,700
10	6	330	180	30	16.6	2½	2½	½	1,825
8	8	275	126	125	22.0	2½	2	½	2,310
9	8	275	162	100	27.0	2½	2½	½	2,450
10	8	275	200	70	32.0	3	3	½	2,590
12	8	275	288	35	30.0	3	3	½	2,850
14	8	275	391	25	32.0	4	3½	½	3,150
9	10	247	181	125	32.0	2½	2½	½	2,640
10	10	247	224	90	35.0	3	3	½	2,685
12	10	247	323	60	43.0	3	3	½	2,950
14	10	247	440	35	43.0	4	3½	½	3,250
10	12	220	240	125	43.0	3	3	½	3,490
11	12	220	286	100	47.0	3½	3	½	3,700
12	12	220	345	70	50.0	3½	3½	½	4,087
14	12	220	469	40	53.0	4	3½	½	4,495
16	12	220	614	30	56.0	4½	4	½	4,950
18	12	220	777	20	54.0	5	4½	½	5,450
12	12	220	345	125	61.0	3½	3½	½	4,660
14	12	220	469	90	74.0	4	3½	½	5,126
16	12	220	614	60	84.0	4½	4	½	5,700
18	12	220	777	35	79.0	5	4½	½	6,250
20	12	220	960	25	79.0	6	6	½	6,950

EQUIPMENT WITH EACH MACHINE.—Unloader, automatic sight-feed lubricator for air cylinder, drain valves, fibrous packing for all stuffing-boxes, and all necessary special wrenches.

All power ends enclosed for oil-splash lubrication. All sizes have Gardner Duoplate Valves.

Write for prices and complete description.

AMERICAN IMPROVED AIR COMPRESSORS

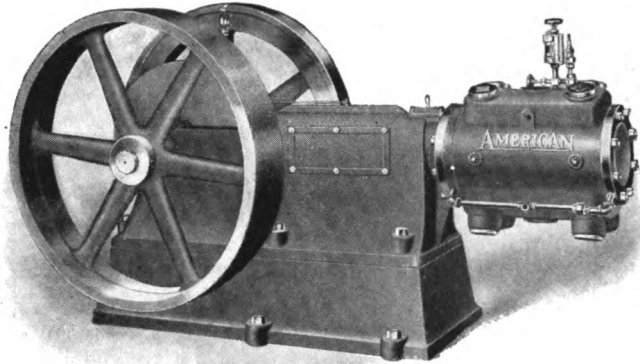


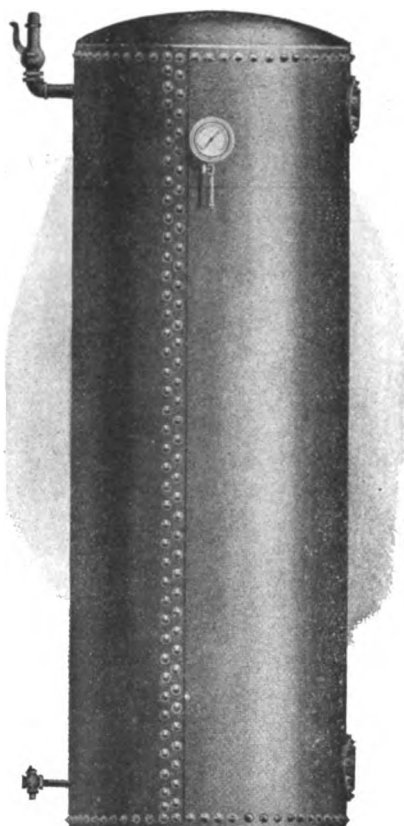
Fig. 668

Belt Drive

We can furnish these machines in both single and two-stage patterns, and can duplex any of the sizes shown in the tables in either the belt or steam-driven types, thereby, of course, doubling the rated capacities. Can also be furnished direct-connected to electric motors by either pinion, belt, or silent-chain drive.

Air Cylinder.....	Stroke.....	R. P. M.....	Capacity in Cu. Ft. Free Air per Minute.....	Max. Air Pressure.....	H. P. at Max. Air Pressure.....	Air Inlet Pipe.....	Air Discharge Pipe.....	Diameter of Belt Wheel.....	Weight	
									Comp. Only	With Sub-Base.....
6	6	150	29	100	6½	1½	1	30	755	940
8	8	175	81	100	16½	2½	2½	39	2,200	2,600
9	8	175	103	80	18	3	2½	39	2,400	2,800
10	8	175	127	60	18½	3	2½	39	2,600	3,000
12	8	175	166	40	19	3½	3	39	2,800	3,200
8	12	150	104	100	20	3	2½	48	3,300	4,000
9	12	150	132	100	26½	3	2½	48	4,100	4,800
10	12	150	163	100	32	3½	3	48	4,300	5,000
12	12	150	235	100	46	4	3½	60	5,300	6,200
14	12	150	320	80	55	4½	4	60	5,700	6,400
16	12	150	420	50	55	5	4½	60	5,900	6,600

## Air Receivers



**Fig. 669**

Our Air Receivers are made of the best grade of material: circular seams, single riveted; vertical shell seams are lap-joint, double riveted. Heads dished, one convex and one concave. All receivers are thoroughly tested with hydraulic pressure and made mechanically tight, after which they are tested with 100 pounds air pressure and examined very carefully to see that they are tight before shipment.

These Receivers are made in various thicknesses to withstand the pressure required.

**Prices on application**

## Duplex Welding and Cutting Torch

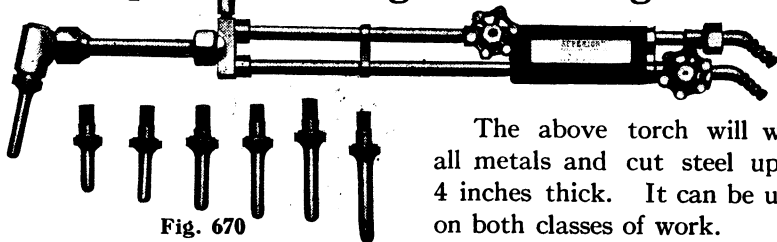


Fig. 670

The above torch will weld all metals and cut steel up to 4 inches thick. It can be used on both classes of work.

Outfit No. 1 consists of:

- |                          |                                    |
|--------------------------|------------------------------------|
| 1 Duplex Champion Torch. | 1 Copper Adapter.                  |
| 3 Copper Cutting Tips.   | 5 Copper Welding Tips.             |
| 1 Copper Housing.        | Price of outfit as above, \$30.00. |

Outfit No. 2 Consists of:

- |   |                                |
|---|--------------------------------|
| 1 Duplex Champion Torch.                | 4 Hose Clamps.                 |
| 5 Copper Welding Tips.                  | 1 Pair Goggles.                |
| 1 Carbon Burning Tip.                   | 1 Safety Torch Lighter, No. 1. |
| 1 Safety Front Oxygen Regulator.        | 8 Cast Iron Rods.              |
| 1 50-pound or 300-pound Gauge.          | 3 Aluminum Rods.               |
| 1 Acetylene Regulator.                  | 3 Brass Rods.                  |
| 1 50-pound Gauge.                       | 10 Steel Rods.                 |
| 1 Length Oxygen 5-ply Hose, 10 feet.    | 1-pound Cast Iron Flux.        |
| 1 Length Acetylene 5-ply Hose, 10 feet. | 1-pound Brass Flux.            |
|   | 1-pound Aluminum Flux.         |

Price of outfit as above, \$60.00

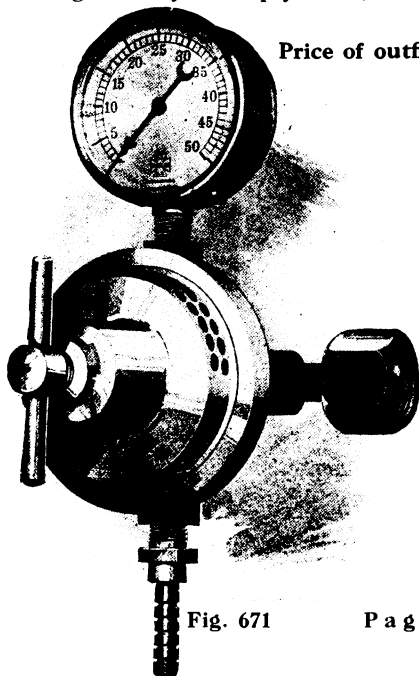


Fig. 671

No. 9 Safety Front Oxygen Regulator, passed upon by the Board of Underwriters, finished in brass, has a 3-inch diaphragm for welding, ranged under reduced pressure 0 to 50 pounds, and a 2½ inch diaphragm for cutting, ranged under reduced pressure 0 to 220 pounds, capable of delivering a large volume of gas, furnished with a 50 or 300-pound gauge.

Price, \$12.00; Without Gauge, \$10.00.

ROOVERS TYPE EMBOSsing PRESSES

Extra High Embossing

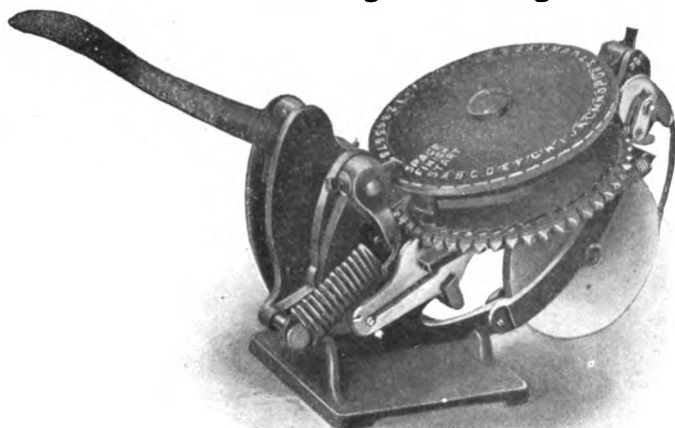


Fig. 672

For making durable pattern letter plates. Easy to affix to patterns and stay there. Also used for making Tags, Labels, Brands, etc., quick and at low cost.

Special zinc tape in rolls is generally used. Special aluminum or brass can also be used.

OPERATION.—Tape feeds automatically from roll. Lever is pressed down on "start," then on each character desired in succession, though on "finish" plate drops out with ends perforated. Any length plates can be made. One letter or figure to any number of letters and figures desired. Used all over the world.

Model	AA.	1/8 " High Embossing, using	3/8 " wide tape,	Net Weight	Packed
				58 lbs.	80 lbs.
"	AA.	3/16" High	" 7/16" "	" 58 "	" 80 "
"	AA.	1/4 " High	" 1/2 " "	" 58 "	" 80 "
"	AA.	1/4 " Low	" 1/2 " "	" 58 "	" 80 "
"	BB.	9/32" High	" 9/16" "	" 80 "	" 130 "
"	BB.	5/16" High	" 3/4 " "	" 80 "	" 130 "
"	BB.	5/16" Low	" 3/4 " "	" 80 "	" 130 "
"	BB.	3/8 " High	" 7/8 " "	" 80 "	" 130 "
"	BB.	3/8 " Low	" 7/8 " "	" 80 "	" 130 "
"	CC.	1/2 " High	" 1 1/2 " "	" 250 "	" 360 "
"	CC.	5/8 " High	" 1 1/4 " "	" 250 "	" 360 "
"	CC.	3/4 " High	" 1 1/2 " "	" 250 "	" 360 "

Prices on application.

CHAMPION CRUCIBLE CHARGE PACKING PRESS

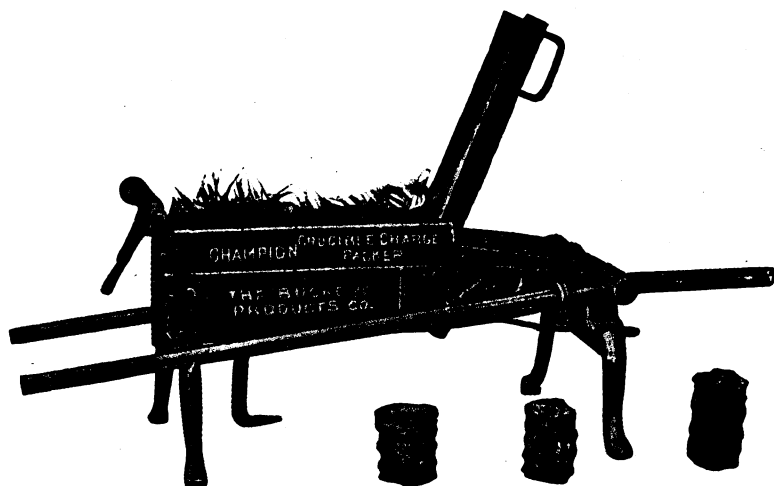


Fig. 673

Above illustration shows our Crucible Charge Packing Press, which is intended for use in connection with brass foundries, to put old brass and copper articles and wire scrap into proper shape to fit into crucibles to be melted.

Packing press is self-contained, so that it may be placed anywhere that the scrap may be, and it is at once ready for work, requiring no substantial floor upon which to place it, neither any fastening down. It is provided with levers on both sides, so that it may be operated by one or two persons.

SIZES AND PRICES

For charges 6 inches in diameter, variable length, to suit	
Crucibles Nos. 30 to 50.....	\$125.00
For charges 7 inches in diameter, variable length, to suit	
Crucibles Nos. 50 to 60.....	145.00
For charges 8 inches in diameter, variable length, to suit	
Crucibles Nos. 60 to 100.....	160.00

Write for circular for more complete information.

## Hauck Burners

### Cupola Lighting

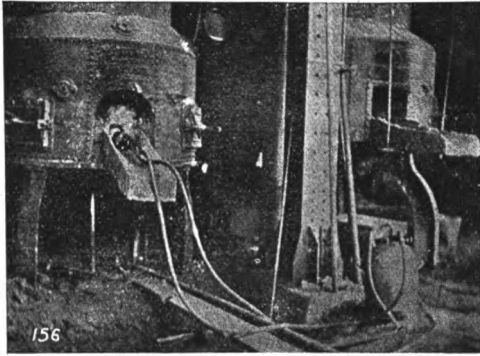


Fig. 674

Hauck Burners have been successfully used for cupola lighting for over 15 years. They are now almost universally adopted throughout this country and abroad.

Hauck Burners will quickly, safely, and evenly light any size cupola at less cost than with wood, producing hot, clean iron with the first tap.

Hauck Burners eliminate ashes.

The flame does not injure the cupola lining or sand bottom.

This outfit will pay for itself in a short time. With the Hauck method of cupola lighting there is no shifting of coke-bed, as occurs when wood is used.

Usually the flame is directed through breast-hole, as illustrated in Fig. No. 000, producing uniform ignition of the coke-bed.

### LADLE AND CRUCIBLE DRYING AND HEATING

Hauck Burners offer the simplest and most economical method of safely drying and heating ladles. No wood required; eliminates all smoke, ashes, and gases. Special burners and equipment are furnished for heating bull and crane ladles. Sketches and detailed information furnished upon request.

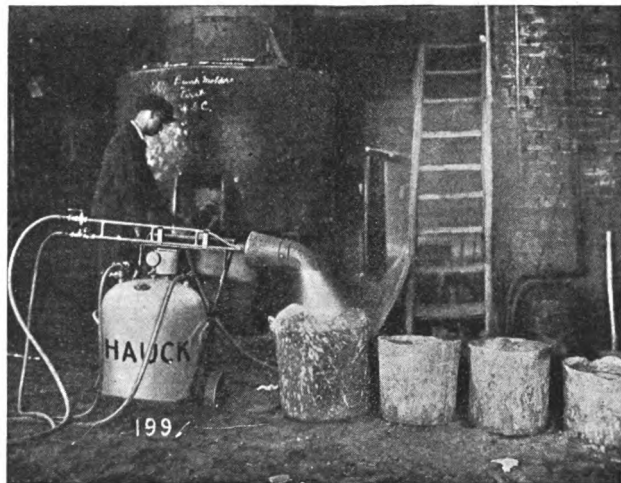


Fig. 675

Above illustrates one method of drying and heating ladles in grey iron foundry, using a Hauck Burner with elbow nozzle. The ladles are evenly dried and heated on bottom and sides.



## HAUCK COMPRESSED AIR TYPE BURNERS



Fig. 676

Will Ignite Instantly Without  
Previous Heating

Burns the  
cheapest grade  
of crude fuel,  
kerosene oil, or  
distillate with  
compressed air  
under any pres-  
sure, varying  
from 10 to 120  
pounds.

Hauck Burners are practically in-  
destructible, being built substan-  
tially for every-day hard foundry  
service. All parts are welded or brazed.

Being preferred for their correct design, Hauck Burners atomize  
the oil perfectly, developing full heating value of fuel utilized without  
loss of heat by radiation through lengthy or double-nozzle effect.

Burners are very light in weight, therefore easily handled, making  
them the most popular burners among operators.

Flame is steady and easily regulated to proper size.

### FOR SKIN-DRYING,

the No. 5 and No. 5-A outfits have been found most suitable.

### FOR CUPOLA LIGHTING,

we recommend the following burners:

Cupolas up to 42-inch diameter, inside lining, No. 4.

Cupolas up to 72-inch diameter, inside lining, No. 2

Cupolas up to 84-inch diameter or larger, inside lining, No. 1

Combination Compressed Air and Hand Pump Tank can be furnished  
for operating either way.

We will furnish a two-wheel hand truck for any of the outfits, if  
desired.

The following table gives sizes and information of our standard  
outfits:

No.	Capacity of Tank	Length of Hose	Oil Con- sumption per Hour	Air Con- sumption cu. ft. Free Air per Min.	Shipping Weight	Weight of Burner	Price
1	16 Gal.	24 ft.	4 Gal.	20	110 lbs.	15 lbs.	\$132.00
2	15 Gal.	24 ft.	3 Gal.	15	100 lbs.	10 lbs.	115.00
4	12 Gal.	24 ft.	2 Gal.	12	90 lbs.	6 lbs.	90.00
5	10 Gal.	24 ft.	1 Gal.	8	85 lbs.	3 lbs.	78.00
5A	5 Gal.	24 ft.	½ Gal.	5	50 lbs.	2 lbs.	60.00

## HAUCK HAND PUMP TYPE BURNER

**Burns Kerosene (Coal Oil); No Compressed Air Required**



Fig. 677

This burner is of the vaporizing type, operating without compressed air; especially suitable for shop and outside work. The flame is intense and is easily regulated as desired. Before operating it is necessary to pump from 30 to 60 pounds pressure into the tank, which can be obtained within a few minutes pumping with hand pump inside of tank, for forcing the oil to the burner. The burner does not use air from tank; it can be operated continuously several hours with a single pumping.

### CONSTRUCTION

**TANK.**—Made of steel, all seams welded and brazed, tinned inside and outside. Fittings and valves are of best composition metal.

**PUMP.**—Quick acting, long stroke, 2 inches in diameter, heavy brass, built inside of tank.

**BURNER.**—Atomizing chamber is of special heat-resisting metal; passageways are provided with screw plugs for easy cleaning; supplied with special oil needle valve and strainer, using any grade of kerosene or coal oil.

**HOSE.**—Hauck special oil-resisting interwoven hose.

**STANDS.**—As shown, holding above burner are furnished when ordered.

### FOR SKIN-DRYING

The Nos. 7, 7A, and 8 outfits have been found most suitable for the average-size molds, and the No. 9 outfit for extra large molds (loam and pit molds).

### FOR CUPOLA LIGHTING

We recommend the following burners:

Cupolas up to 24-inch diameter, inside lining No. 7-A

"	up to 32-inch	"	"	"	"	7
"	up to 42-inch	"	"	"	"	8
"	up to 52-inch	"	"	"	"	9

No.	Capacity of	Length of	Oil		Length Full	Price
	Seamless Tank		Consumption	Per Hour		
140	1½ gal.	6 ft.	1	quart	13 in.	\$33.00
150	3 gal.	6 ft.	2	quarts	15 in.	40.00
160	5 gal.	6 ft.	3	quarts	18 in.	45.00
11	3 gal.	6 ft.	1	gal.	22 in.	48.00
7A	5 gal.	6 ft.	1	gal.	24 in.	54.00
7	10 gal.	12 ft.	1½	gal.	26 in.	78.00
8	12 gal.	12 ft.	2½	gal.	28 in.	90.00
9	15 gal.	12 ft.	3	gal.	33 in.	108.00

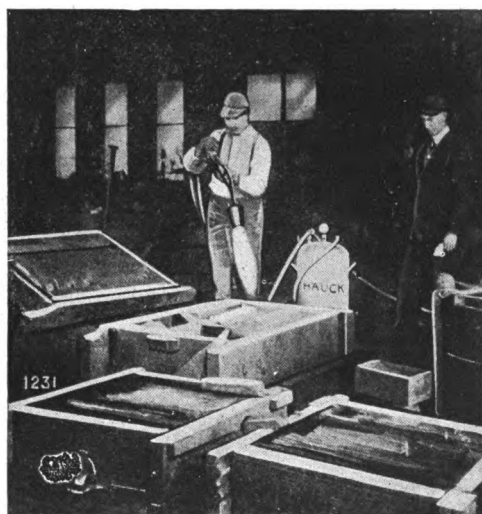


Fig. 678

Fig. 678 illustrates where six molds were uniformly dried one-half inch deep, using only two gallons of oil. Drying these molds with the Hauck Burner, the castings were poured on the same day.

## Drying Molds

Hauck Burners produce the proper flame for drying molds quickly, satisfactorily, and most economically.

Molds can be dried to any desired depth or hardness.

Being light in weight, the burners can be easily held in any position, and the flame directed from any angle.

The volume of flame can be regulated instantly, always uniform, producing either a large and spreading heat for flat surface or a small, pointed flame for concentrating into deep or shallow molds.

## HAUCK WELDED STEEL KEROSENE TORCHES

The most practical hand torches for Brass, Iron, Steel, Bronze, and Aluminum Foundries and Core Rooms, producing large, soft flames.

### FUEL

Kerosene has 116,000 B. T. units to the gallon, as compared with gasoline, which has 83,870 B. T. units to the gallon, showing 32,320 more units in favor of kerosene to every gallon. Besides, kerosene costs less and is much safer.

We recommend our No. 14 Torch as being the most suitable torch for foundry service.

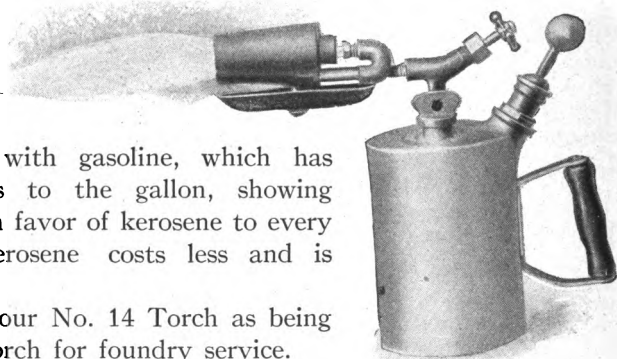


Fig. 679

No.	Capacity	Oil Consumption Per Hour	Length Full Flame	Price Complete
10	1 quart	½ pint	8 in.	\$10.00
14	½ gal.	1 pint	15 in.	20.00
15	1 gal.	2 pints	18 in.	24.00
16	1½ gal.	2½ pints	22 in.	30.00

## Fairbanks Warehouse All-Metal Dial Scale



Fig. 680

### SIMPLY PUT THE LOAD UPON THE PLATFORM— THEN READ

That's the new and EFFICIENT method of weighing merchandise. The load on the platform starts the big pointer around the dial—it comes to rest at the exact weight, and you read DIRECT FROM THE DIAL. No need for additions or calculations of any kind—the full and correct figure is shown at the pointer clearly and quickly at any load up to the full capacity of the Dial Indicator.

Dial Scale Circular, giving full information, sent upon request.

# PORTABLE PLATFORM SCALES

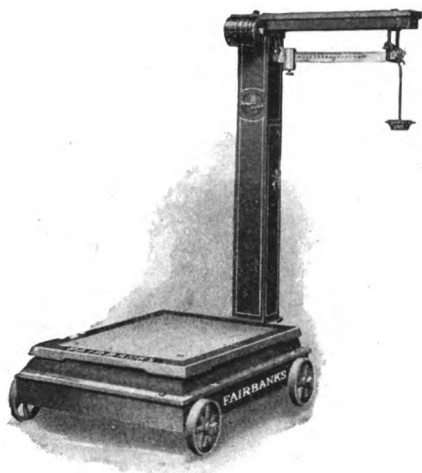


Fig. 681

This type of Portable Scale is one of the most efficient for general use, and may be furnished either with or without wheels. It is equipped with arrow-tip single beam, having a sliding poise, with set-screw, all of brass.

From 1,500-pound capacity up. All sizes have pillar braced with iron rod.

Capacity	Beam	Platform	Price
2,500 lbs.	100x½ in.	24"x33"	\$90.00
2,000 "	100x½ "	24"x33"	80.00
1,500 "	100x½ "	21"x30"	60.00
1,000 "	100x½ "	17"x26"	43.00
500 "	50x¼ "	16"x25"	33.00

# "STAR" SWIVEL BASE MACHINIST'S VISE

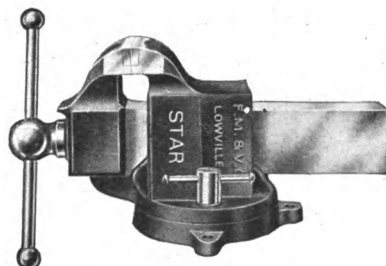


Fig. 682

## Jaws Cast Steel, Faced and Tempered. Swivel Base.

This vise can be swiveled to any desired position.

The base is locked by a taper head bolt, which locks it as firmly as the jaws are locked.

The vises cannot wobble or chatter when in use, as the bolt takes up all lost motion.

## PRICE LIST—SWIVEL BASE

No.	Jaws	Open	Weight	Price
1825	2½ in.	3½ in.	20 lbs.	\$7.80
18½	3 "	4 "	28 "	9.00
19	3½ "	5½ "	36 "	10.50
20	4 "	6 "	50 "	12.50
21	4½ "	7 "	64 "	15.00
22	5 "	8 "	82 "	19.20
23	6 "	10 "	153 "	36.00

## Brown Portable Pyrometers For Molten Metal Temperatures

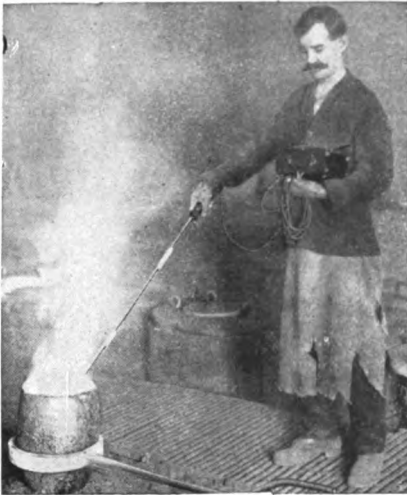


Fig. 683

In foundries casting brass, bronze, copper, or aluminum, it is necessary to know the correct pouring temperature, to prevent spongy and defective castings. For brass, bronze, and copper a bare nickel-chromium thermocouple is inserted directly into the molten metal and reads the temperature in a few seconds. For aluminum, the thermocouple is permanently placed in the metal, and either a stationary or portable Pyrometer is used.

The Brown Portable Pyrometer illustrated here is of the low-resistance type, which is dead beat, sturdy and will stand rough handling. The scale is 5 inches long, with mirror under pointer for accurate reading.

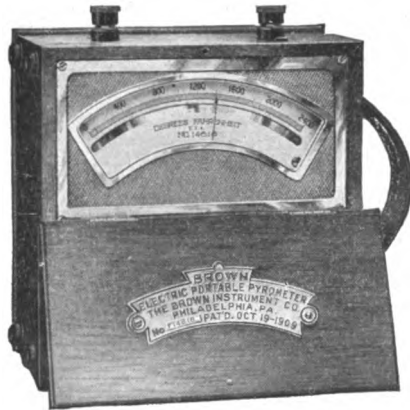


Fig. 684

There is an automatic locking device supplied which locks pointer when cover is closed, preventing damage to instrument in handling or shipping.

### PRICE

1 Brown 48" Portable Indicating Pyrometer .....	\$60.00
1 36-inch Base Metal Thermo-couple, with $\frac{1}{4}$ -inch nickel-chromium rods .....	17.50
15 feet of portable leads supplied with the instrument.	

## Mercurial Pyrometers or Thermometers

For Temperatures to 1000° Fahr.

The Mercurial Pyrometers or Thermometers, for measuring temperatures up to 1,000 degrees are similar to low-temperature thermometers, with the exception that the high-range instrument is hydrogen-filled. Above the mercury column, hydrogen gas, under pressure, is used instead of a vacuum.

The Mercurial Pyrometers are exceedingly accurate. Each thermometer is graduated individually, the scale being carefully marked after tests at a number of points. The lines and figures are stamped in the metal scale, and are clearly legible. These thermometers can be supplied with various lengths of stem to best meet conditions. The prices of a few standard lengths are quoted here-with:

Graduated to 1,000 degrees.

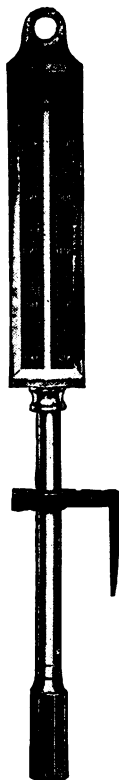


Fig. 685

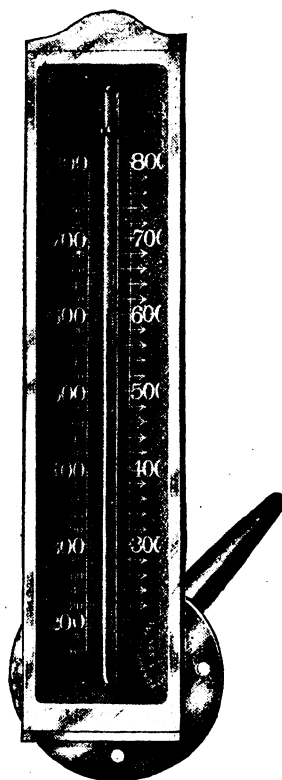


Fig. 686

### LENGTH OF STEM IN INCHES

Type	6 Inches	12 Inches	24 Inches	36 Inches
Straight Stem, each.....	\$25.00	\$28.50	\$30.00	\$33.00
Angle Stem, each.....	28.50	30.00	33.00	37.00

Either round flange or screw-threaded flange, with half-inch, three-quarter-inch, one-inch, or one and one-quarter-inch standard pipe-thread can be supplied at the above prices.

Corresponding ranges in Centigrade can be furnished, if preferred.

Standard scale case is twelve inches long. Other lengths can be supplied to meet requirements.

## BROWN EXPANSION PYROMETERS

### For Furnace Temperatures



Fig. 687

Operates through the difference in expansion of graphite rods and the steel stem enclosing these rods. A compensating device gives exact readings, no matter how much the stem is inserted in the heat above 12 inches. The porcelain dial cannot tarnish, though subjected to heat and gases.

This Pyrometer is carefully tested before shipment with accurate standards. It will withstand hard usage, and can be placed in the hands of any one in a plant. Standard length of stem is 36 inches. For longer lengths, add \$1 per foot.

#### PRICE

6½" dial, 800 F.....	\$20.00
6½" dial, 1,200 F.....	24.00
6½" dial, 1,500 F.....	30.00

## BROWN RECORDING THERMOMETERS

### For Foundry Core Ovens

If cores are not dried in a uniform heat and are soft inside, moisture forms gas when the hot metal is poured. This gas forces through the dry, porous outer shell of the core and into the casting, causing blow holes.

Brown Recording Thermometers keep a permanent record of the temperature in your core oven and show the man how to fire. You can get uniform temperatures all the time.

This instrument is sturdy, accurate, and has been the means of revolutionizing core-drying to-day.



Fig. 688

#### PRICE

8" Long Distance Thermometer, with 25 ft. of flexible armored tubing....	\$60.00
--	---------



# **BROWN PYROMETERS FOR STEEL AND MALLEABLE CASTINGS, ANNEALING FURNACES, ETC.**

A suitable equipment as used in the large majority of all the plants doing work similar to the above is as follows:

1 Brown High-Resistance Indicating Pyrometer, 0 to 2000° F.....	\$85.00
1 Hardwood dust-proof Protecting Case.....	7.50
1 24" Base Metal Thermo-Couple, made of $\frac{1}{8}$ " nickel chromium rods	9.50
1 18" Nickel Chromium Tube, to protect the hot end of above couple..	9.50
15' Double Conductor Wiring supplied with the equipment; additional wiring at 6 cents per foot.	

The operation of the above Pyrometer equipment is guaranteed to the user. A service department, with offices located throughout the East and Middle West, makes regular tours of inspection to check the operation of these instruments at no cost to the user.

This is the reason why there are to-day over 10,000 Brown Pyrometers in successful operation throughout the heat-treating field, and it is your safest guarantee in the purchase of an instrument.



**Fig. 689**  
**The Brown High Resistance Recording  
Pyrometer**

## Brown Pyrometers for Steel and Malleable Castings, Annealing Furnaces, etc.

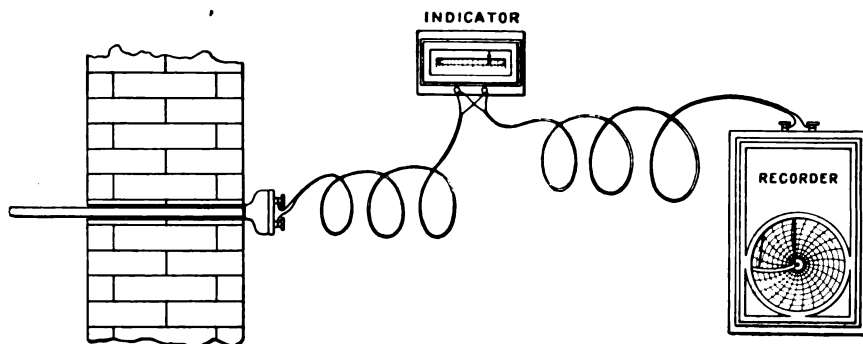


Fig. 690

Brown Pyrometers are the most extensively used throughout the heat-treating industry for the control of annealing furnace temperatures, for steel and malleable iron castings, core-oven temperatures, and in the hundred and one places throughout the large industrial plants where temperature control is absolutely an essential part of efficient production.

The usual equipment consists of an Indicating Pyrometer, as shown below, which tells the furnace man the temperatures. Connected with this, as per wiring diagram above, is a Recording Pyrometer, which keeps a 24-hour record of these heats.

The Indicating Pyrometer, as well as the Recorder, can be connected with a switchboard, so that any number of furnaces can be indicated or recorded on these instruments.

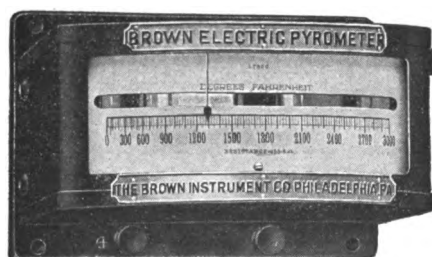


Fig. 691

**The Brown High-Resistance Indicating Pyrometer**

## **Tycos Recording Pyrometer Outfit** **FOR RECORDING TEMPERATURE AT ONE POINT**

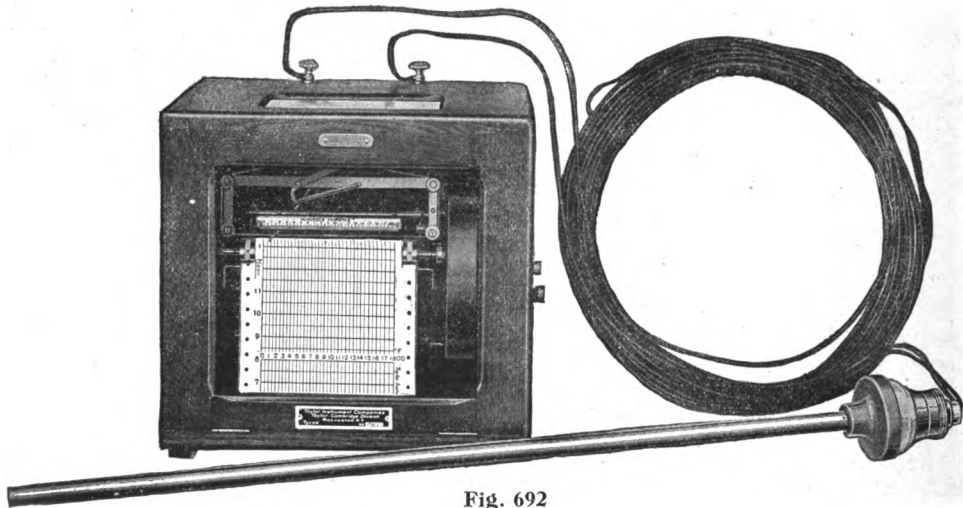


Fig. 692

**Standard Tycos Recording Pyrometer, Patented. Outfit No. 4365. About 1-7 full size.**

The **Tycos** Thread Recorder derives its name from its well-known, unique method of inking.

It is unquestionably the most rugged type of Recording Pyrometer on the market.

The millivoltmeter movement is similar to that employed in the **Tycos** Indicators; it is provided with a knife type pointer which is periodically depressed onto the chart; at each depression the pointer intercepts an impregnated thread, carrying this to the chart and making a dot. These dotting intervals are so frequent as to cause a continuous line even during extremely rapid fluctuations of temperature. In the intervals between dotting, the pointer is free to assume its position, and the operation is therefore frictionless. No ink can be absorbed by the pointer, hence the balance of the meter is never disturbed.

The instrument is self-contained, both the time and the dotting operation being controlled by a powerful clock. External zero adjustment is provided.

The attention required to operate this Recorder is:

1. Wind the clock every 24 hours.
2. Change the chart every 50 days.

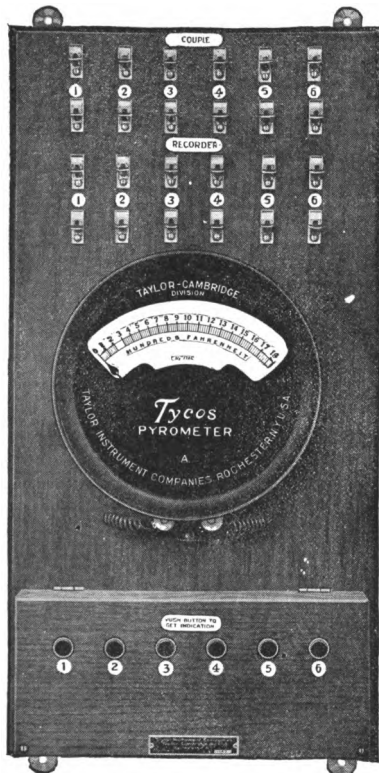
If these two operations are faithfully performed the instrument will give satisfactory temperature records for years, requiring the occasional renewal of the inking thread.

**The success of the Thread Recorder has been thoroughly proven by the test of over ten years use in hundreds of plants in all parts of the world.**

## Tycos Multiple Indicating Pyrometer Equipments

### Push Button Switchboard

Many improvements are embodied in this superior form of switch, which is best suited for practically any type of pyrometer installation.



**Fig. 693**  
**6-Point Switchboard**  
(about 1-6 full size)

important advantage, as it permits the removal of either instrument from the circuit, should emergency demand it, leaving the remaining instrument intact.

The contacts are hard platinum preventing corrosion. They are self-releasing and enclosed in a hinged dust-tight case protecting them from mechanical injury, yet are ready for instant inspection.

All the switches are permanently wired (through the board) to nicked bronze connectors, front mounted and plainly numbered, making cable connections extremely simple and accurate.

This switchboard is recommended for all indicating outfits and must be employed where combined indicating and recording outfits are used. It is especially adapted for this use inasmuch as the indicator and recorder are never on the same circuit at one time. The two instruments can therefore be independently calibrated. This is an

**Prices on application.**

## The Patent "Becker" Molding Frame and Flask

FOR LIFTING THE COPE AND DRAWING A PATTERN BY MECHANICAL MEANS

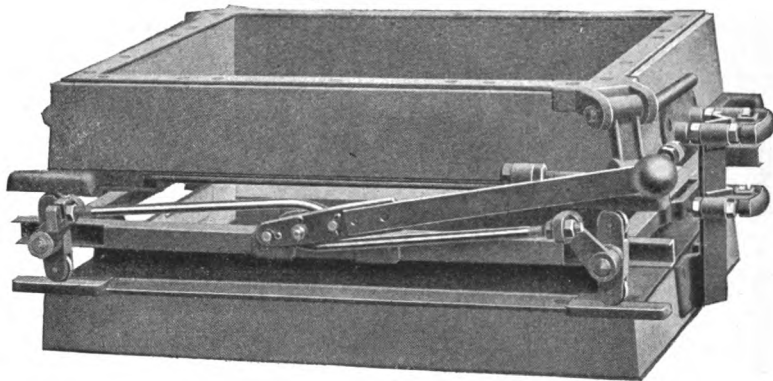


Fig. 694  
BECKER FRAME AND FLASK

A remarkable step forward in the efficiency of the molder is made possible by this highly practical invention. The Becker molding frame and flask automatically lifts the cope and draws the pattern from the mold with a degree of precision rarely obtained by even the most skilled molder, and enables the foundry laborer to lift the cope and draw the pattern just as well as one who has been trained to the highest skill by hand.

This device insures absolutely perfect molds, increases production to a very considerable degree and draws patterns of every form no matter how intricate, to perfection.

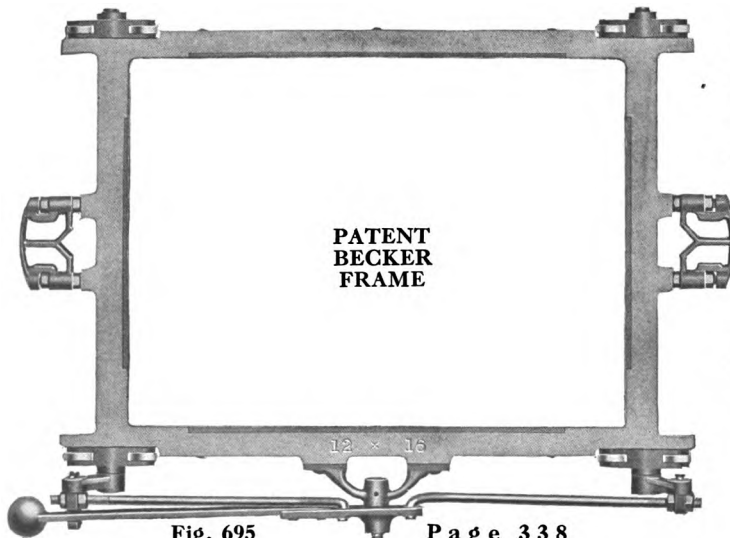


Fig. 695

The frame is made to fit any ordinary snap flask and the device can be handled on any style of molding, machine or bench.

Full capacity in the Foundry is made possible by the elimination of patching molds. The Becker molding frame and flask insures perfect molds.

### PATENT BECKER FRAME

Pattern true castings are assured by the use of the Becker Molding frame and flask.

Practical tests of this frame have been made in numerous foundries with the result of increasing output, and raising the percentage of perfect castings.

The percentage of increase of production ranges as high as 20 per cent in the hands of experienced molders over and above the work done in the old way of lifting the cope and drawing the patterns.

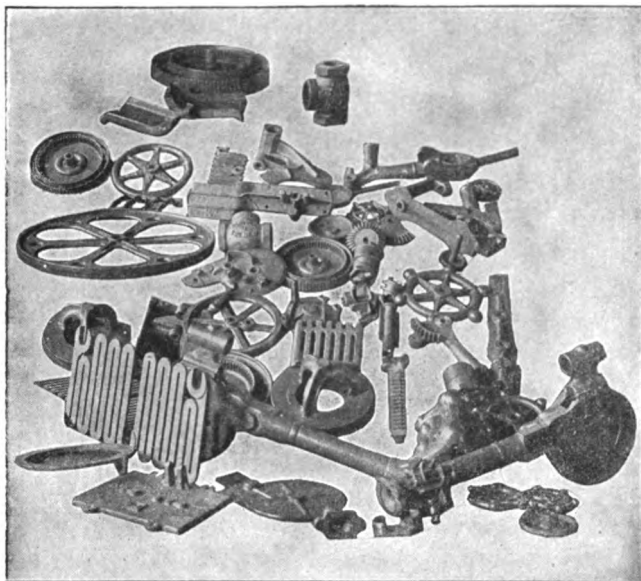


Fig. 696

Castings that can be produced by the Patent Becker Frame and Flask

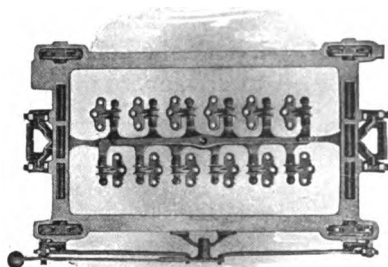


Fig. 697

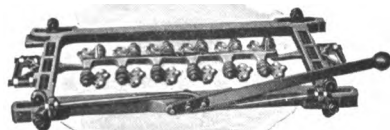


Fig. 698

Showing Gated Patterns in frame.

## Farwell Stationary Squeezer



Fig. 699

### 30-Inch Stationary Farwell Squeezer, with Tool Shelf

There are more patterns that can be handled to advantage on Farwell Squeezers than on any other type of molding machine. This includes all light hardware, stove, malleable, and implement castings which go in flasks not exceeding specified limits.

Particularly high outputs are obtained by using match plate patterns and Adams Pneumatic Rappers in connection with Farwell Squeezers. Carded patterns can also be handled nicely where quantities do not warrant making up match plates.

Prices on application.

**30-INCH PORTABLE FARWELL SQUEEZER**



**Fig. 700**

**30-Inch Portable Farwell Squeezer, with Double Tool Shelf  
and Long Side Shelf**

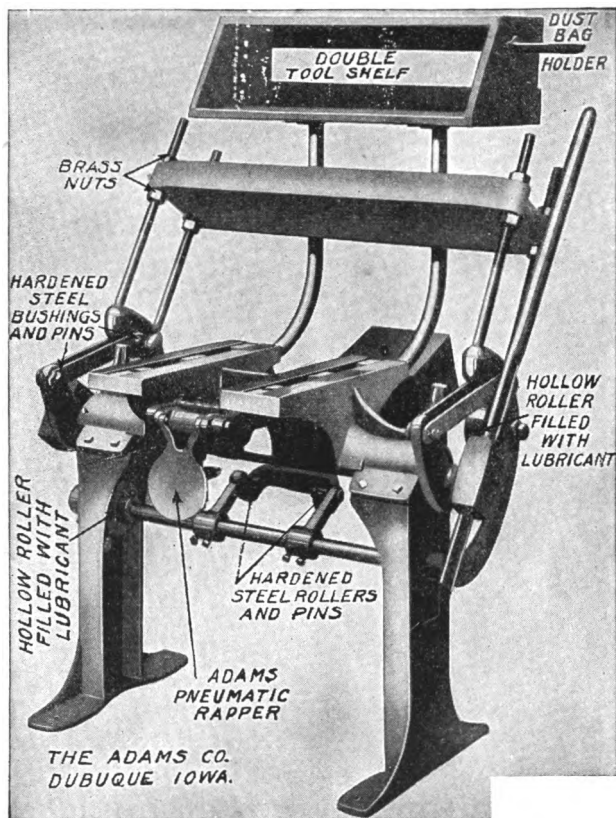
Farwell Squeezers are made in 24, 30, 34, 38, 48, and 60-inch widths, portable and stationary, high and low-down, standard and heavy-duty types, and if desired can be had in the broad-gauge pattern of portable machines, for straddling the sand heap.

Any size or style can be equipped with the Adams Pneumatic Rapper, which is operated by the molder's knee, leaving both hands free to handle flask and pattern. Flasks used on these machines can be of any shape or size within specified limits.

**Prices on application**



**FARWELL DOUBLE ROD SQUEEZER**



**Fig. 701**

**32-Inch Stationary Adams-Farwell Double Rod Squeezer, with Tool Shelf and Adams Pneumatic Rapper**

Adams-Farwell Double Rod Molding Presses are new in design, and we believe are a decided improvement over the ordinary type of squeezer. The improvements lead to greater durability and greater ease of operation by the introduction of anti-friction bearings, while all the tested and valuable features of the old Farwell Molding Presses are retained.

These machines are made in two sizes, 32-inch and 36-inch between rods, both portable and stationary types.

**Prices on application**

## Adams' Molding Machine



Fig. 702

### 30-Inch Portable Farwell Universal Molding Machine, with Tool Shelf, Side Shelf, and Adams Pneumatic Rapper

This machine is well named "Universal." It is ideal for stripping plate work, and possesses all the desirable features of Farwell Squeezers on match plates or carded patterns. Copes and drags can be made separately or run duplex on same machine, squeezing both at once. Machine lifts flask from pattern, if desired, and it is also used on molds that must be rammed by hand.

Farwell Universal Molding Machines are made in 30, 34, 38, 48, and 60-inch widths, and can also be had in the 32-inch and 36-inch Double Rod Type, which we consider decidedly superior to the ordinary type of molding machine. These machines are made in both stationary and portable types.

Prices on application

STEARNS' MOLDING MACHINES

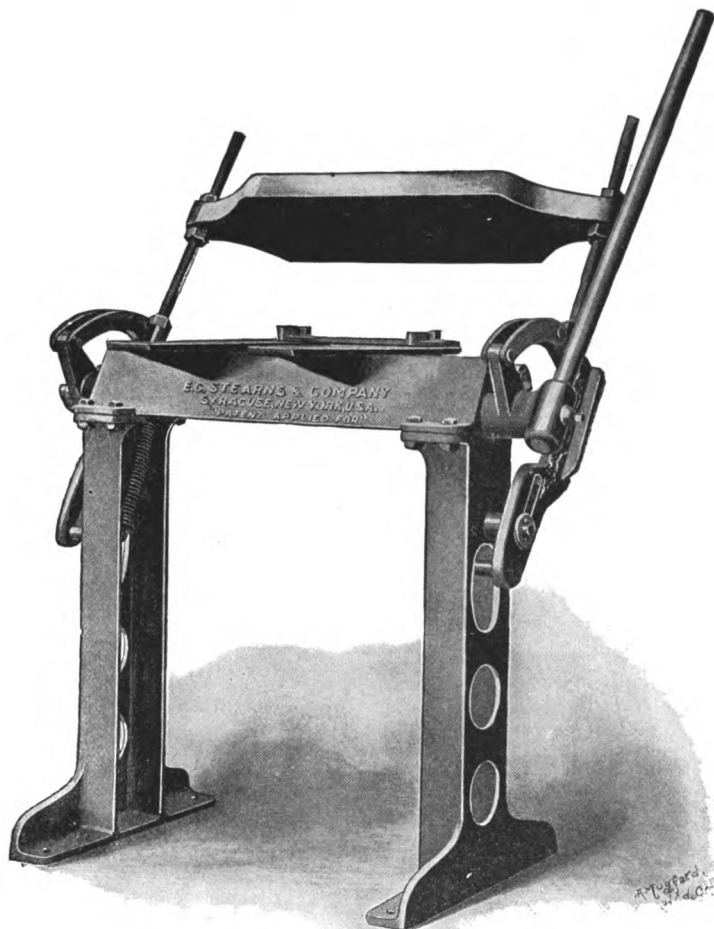


Fig. 703

**Simple to Operate. Practically No Experience Necessary**

No expensive equipment is necessary for the operation of this machine. Flasks of the ordinary type, either wood or iron, solid or snap may be used.

The casting will come more uniform in consequence of each mould being rammed the same. There will be no ramaways around bosses, as found on hand-work.

Regular machines, take flask up to 18x20, 10 inches deep.....\$50.00  
Large machines, take flask up to 18x26, 10 inches deep..... 60.00

Above machine can be fitted with lift lever attachment

COMBINATION JAR AND SQUEEZE PATTERN  
DRAWING MACHINE

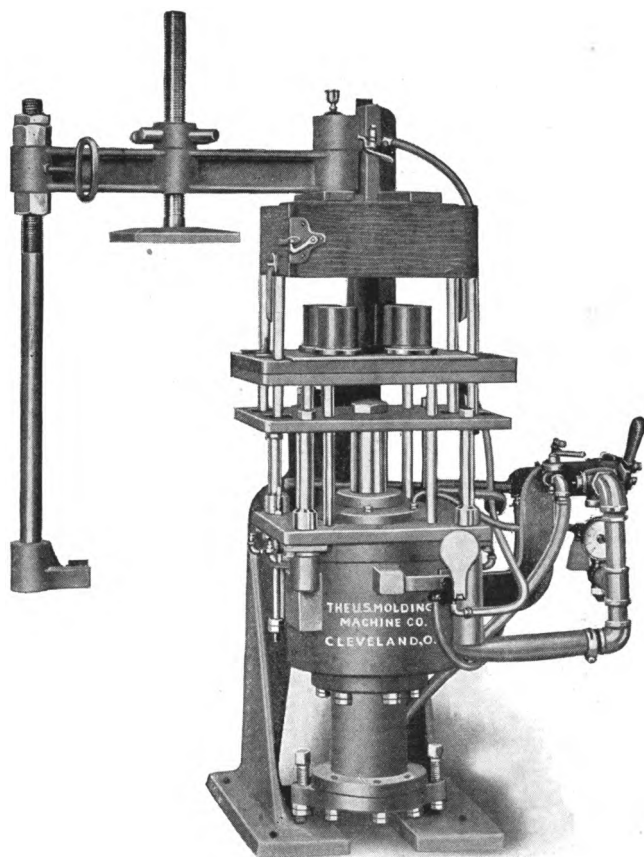


Fig. 704

The above illustrates the Combination Jar Squeezing Pattern Drawing Molding Machine.

These machines are very simple in construction, and nothing whatever can get out of order or become loose under the most severe usage. No complicated valves, springs, or gears are used on these machines, but every motion is positive.

SIZE No. 1.—5½-inch Jar Cylinder, 12-inch Squeeze Cylinder.

SIZE No. 2.—7-inch Jar Cylinder, 15-inch Squeeze Cylinder.

Maximum air pressure required is 80 pounds.

**COMBINATION JAR AND SQUEEZE PATTERN  
DRAWING MACHINE**

These machines have been produced to stand the hard usage of the foundry. The jarring feature of these machines insures perfect and well-packed edges and pockets at the parting, and a perfectly rammed mold where strain comes, instead of soft at the parting lines and hard over high spots. This means that you will get a cleaner casting than you have ever been able to obtain, as the edges will not crumble when mold is floured and blown off, and no loose sand to be washed into the castings, which will mean less scrap from blow-holes and miss-runs and cleaner castings; also no grinding at the parting lines. The jolt is free from vibration or a rebound.

These machines are equipped with gauge and pressure relief valves, which can be set at the proper pressure, thus pressing all molds alike. No hand work or peening around edges of the mold is required. Machine does all the work.

**OPERATION**

The operation of the machine is as follows: The flask is placed on machine, and the usual amount of sand is then riddled onto the pattern. The cock to jar cylinder is opened, which starts the jarring operation; flask is then filled with sand, after which jarring valve is closed and the squeezing valve is opened and mold is squeezed. The squeezing head is then thrown back out of range, vibrator is started by means of the knee-valve and air is admitted to draw cylinder, which lifts the mold away from pattern, and mold is ready to be removed.

These machines are in many foundries, doing high-class work, and in every case they produce cleaner and better castings than ever obtained by the best molder or other types of machines. The squeezing is done to butt off the mold, but not to compress the sand around pattern, as the jar is sufficient. The air consumption on these machines is reduced to the lowest possible point. The squeezing head is adjustable up and down, and can be set so that it just clears the flask-board when mold is being squeezed, necessitating only a small motion of the squeezing cylinder. A trial of these machines will convince you that they will do all we claim for them. We are ready to ship you a machine, guaranteeing same to produce better work at less cost than any other machine.

We can furnish machines for making every kind and size of casting, consisting of: Plain Air Squeezer; Jolt and Squeeze Machine; Plain Jolt Machine; Jolt Pattern Drawing Machine; Jolt Roll-Over Pattern Drawing Machine; Combination Jar Squeeze Roll-Over Pattern Drawing Machine.

**Prices on application**

## Air Jolt Machine

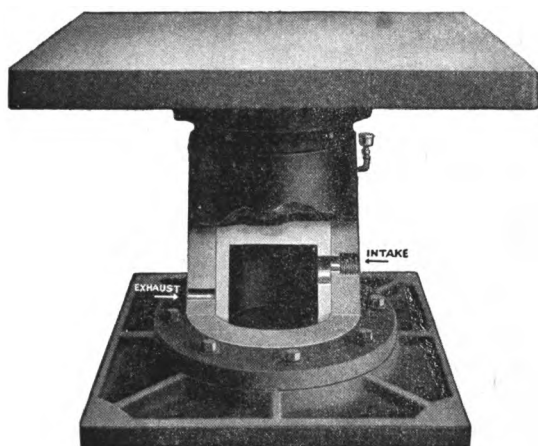


Fig. 705

These machines are constructed without a valve, yet we claim that, on account of the construction of the cylinder and the placing of the in-take and exhaust, which makes the piston act as a cut-off valve, allowing no air to enter the machine while it is discharging, that it is just as economical and has just as great a capacity as a machine with a valve. Having no valve, nothing can get out of order. It

rams molds or cores with greater uniformity than can possibly be done by hand, and thereby increases your output to five to ten times as much as can be done by hand ramming, reducing cost of production.

Sizes	Cylinder	Table	Capacity, Lbs.	Weight, Lbs.
No. 5	5"	18"x20"	600	350
No. 6	6"	24"x24"	1,000	1,000
No. 8	8"	24"x30"	1,500	1,500
No. 9	9"	30"x36"	2,000	2,250
No. 10	10"	36"x36"	2,500	2,500
No. 12	12"	36"x48"	3,500	3,000
No. 15	15"	48"x48"	5,000	5,100

Size of table can be changed to suit requirements.

No 5 recommended for Bench Work.

## BABY CORE JARRING MACHINE

This machine is furnished with and without flange table. Adjustable clamps are furnished with this machine. It will handle several core boxes at the same time, regardless of their shape.

No.	Cylinder	Table	Capacity	Weight
0	2"	10x10	150 lbs.	100 lbs.
1	3"	12x12	300 lbs.	125 lbs.
2	4"	18x18	400 lbs.	175 lbs.

Can be furnished with plain table when desired.

Prices on application.

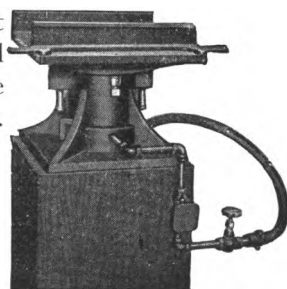
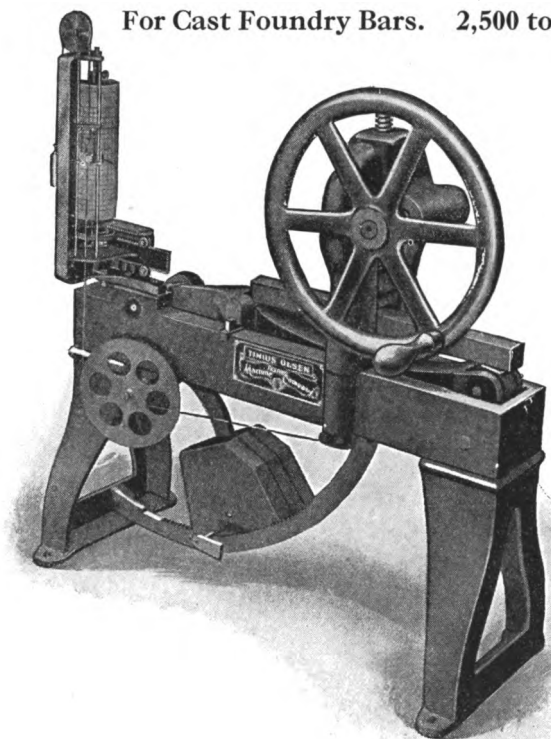


Fig. 706

## Olsen New Autographic Transverse Testing Machine No. 1

For Cast Foundry Bars. 2,500 to 5,000 Pounds Capacity



This illustration is of the most up-to-date transverse testing machine made for cast foundry bars. By its use a stress strain diagram of the test may be obtained, showing the deflection for any load up to the point of rupture of the specimen in as short a time as previously utilized to make the ordinary transverse test. The weighing mechanism is of the most accurate type, being a combination of lever and pendulum balance, which automatically weighs the load.

Fig. 707

The pendulum is so arranged that by changing weights it will weigh to either maximum of 2,500 pounds or of 5,000 pounds, and the recording scale and autographic diagram is thus obtained in two magnitudes, depending on the grade of iron to be tested.

### Adaptation

For use on cast foundry bars either  $1\frac{1}{4}$  inches in diameter or 1 inch square in section, and 12 inches long between supports; bar, 13 inches long over all.

We can arrange this machine for steel or any other type of special test, in which case either the capacity or the amount of deflection to be recorded is arranged so as to give a maximum size curve for that material.

### DIMENSIONS

Length	Width	Height	Weight
2 feet	1 foot	2 ft. 2 in.	120 lbs.

Larger capacities can also be furnished up to 1,000,000 pounds.

Prices on application.

## Core Oven, Foundry and Mill Cars

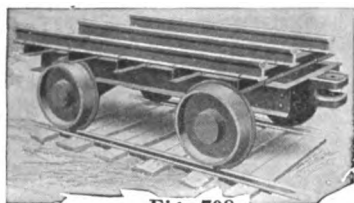


Fig. 708

Type No. 721. Used about rolling mills for handling billets. Roller bearings.

Type No. 722. "Annealing Car." Used for handling castings in annealing room. Individual axles and roller bearings.

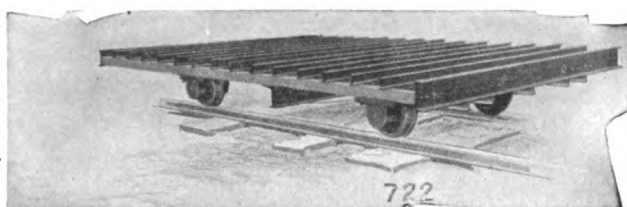


Fig. 709

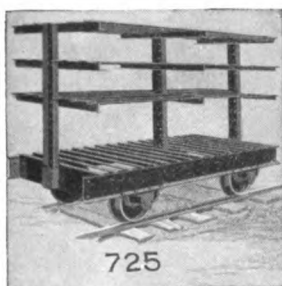


Fig. 710

Type No. 725. Designed for handling cores in drying ovens, about foundries. Roller bearings. With and without racks.

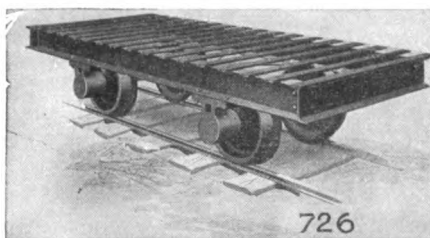


Fig. 711

Type No. 726. "Core Oven Car." For handling large cores.

Car Numbers	721	722	725	726
Capacity, Tons	8	10	5	6
Length Over All	86½"	15' 6"	9' 0"	96"
Width Over All	48"	9' 11"	48"	42"
Drawbar, Height	14"			
Height from top of Rail (extreme)	24"	24 5/16"	66½"	20"
Wheel Base	42"	9' 0"	66"	48"
Gauge Track	36"	56½"	36"	24"

These types are merely a few of those that are designed and built for this class of use. We can furnish any desired modification of cars shown, or we can supply cars built to entirely special specifications.

When writing for prices, send sketch of design wanted,



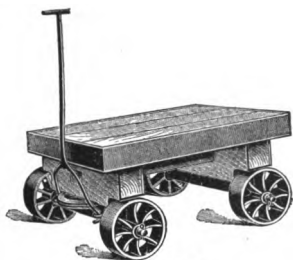


Fig. 712

## Foundry Wagons

This wagon was designed for the heaviest kind of work about the foundry. It is furnished with a fifth-wheel large enough to avoid upsetting.

The platform is made of 3-inch hardwood planks and bound all around with iron.

Size No. 11—30 by 40 inches, 10½-inch wheels, price.....\$36.00  
 Size No. 12—36 by 60 inches, 10½-inch wheels, price..... 48.00

## CORE OVEN TRUCK

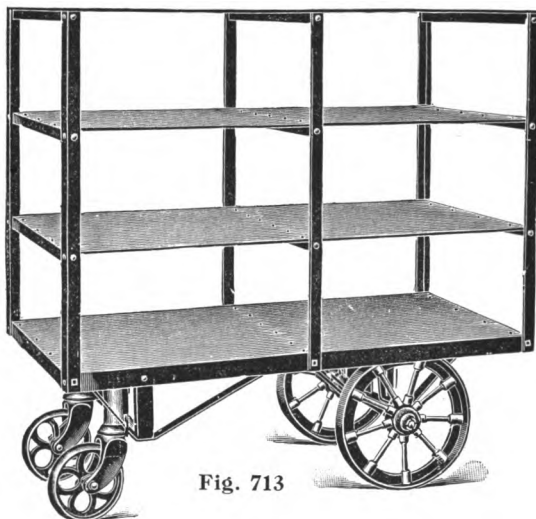


Fig. 713

Various trucks, similar to the one shown, designed for carrying cores in foundries or for other purposes, are made to order. State size desired and weight to be carried. Prices on application.

## STOVE CARRIER

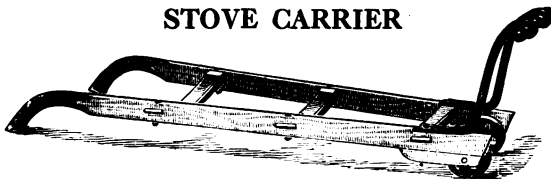
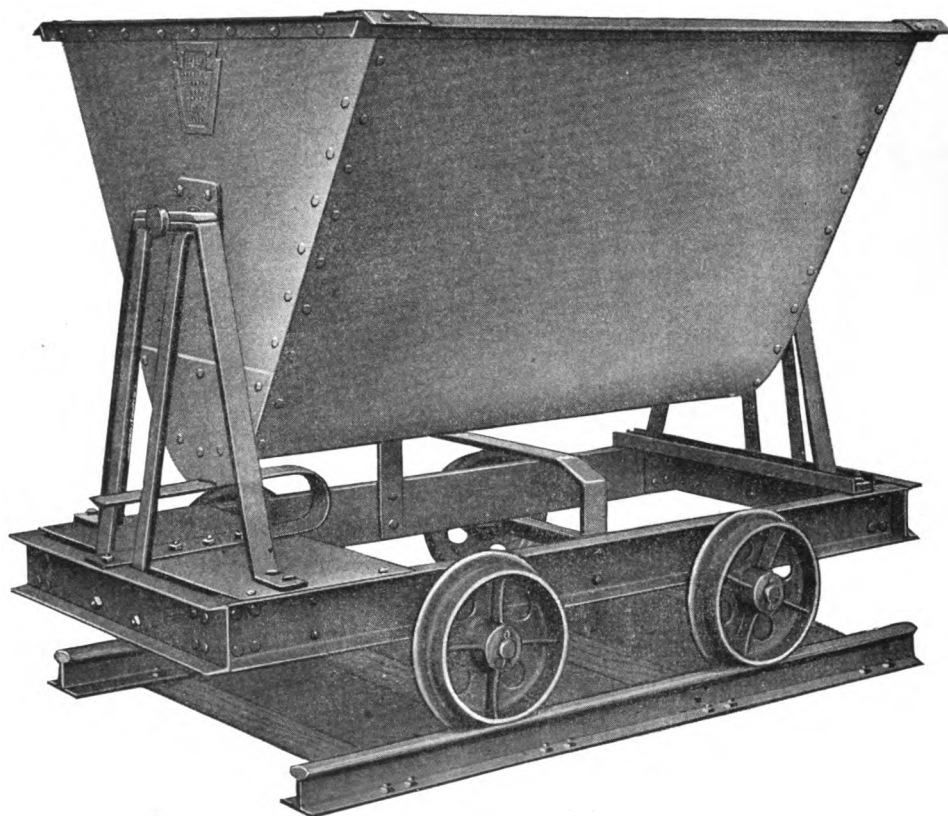


Fig. 714

This stove carrier is the most convenient truck made for this purpose. It is light, yet strong.

Price, \$10.00 each.

## Industrial Car



**Fig. 715**

This car is used by contractors, foundries, and industrial plants, etc. It is made entirely of iron and steel. Below are dimensions of standard cars. They can be made of any special capacity or dimensions to suit the requirements.

Always Mention Gauge of Track.

### DIMENSIONS OF STANDARD INDUSTRIAL CARS

No.	Cubic Feet Capacity	Gauge of Track	Prices on Application
1	18	20 x 24	
2	27	20 x 24	
3	36	24	
4	54	36	

## Switches, Crossings, Portable Track

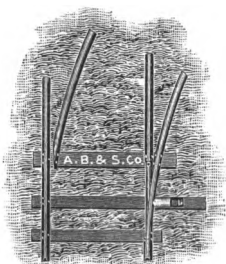


Fig. 716

**Right-Hand Switch,  
Lever Throw.**

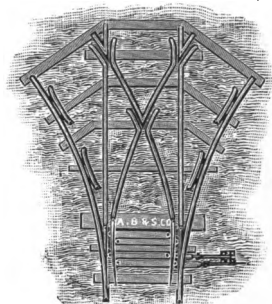


Fig. 717

**Three-Way Switch,  
Lever Throw.**

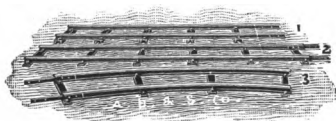


Fig. 718

**Portable Track, showing dif-  
ferent styles of ties and  
connections.**

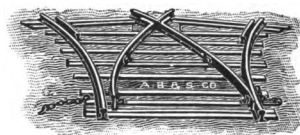


Fig. 719

**One-Way Left-Hand Switch,  
Foot Throw.**

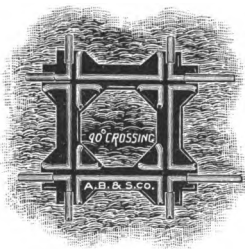


Fig. 720

**Ninety-Degree Crossing.**

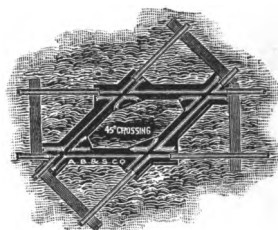


Fig. 721

**Forty-five Degree Crossing**

We can furnish 12, 16, 20, 25, and 30-pound steel tee rail; also fish-plates, bolts, and spikes for same.

Prices on application

## Double Door Bottom Dump Bucket Quick Acting



Fig. 722

**LOCKED**

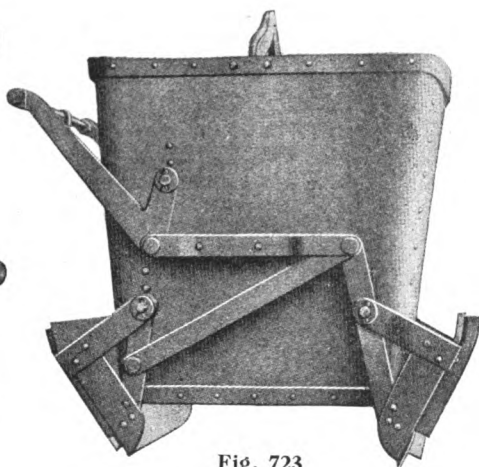


Fig. 723

**DUMPED**

The above bucket is for general use, and for clean dumping and quick acting it cannot be excelled.

The lever mechanism is simple, and so arranged that the load in the bucket holds the doors in place.

Extra safety catch is provided and placed at most convenient position to the operating rod.

The doors are made of heavier material than the bucket, and are braced in the best possible manner. Catch can be opened by tag line, and operated from any angle.

No.	Capacity, Cu. Ft.	Length	Width	Height	Weight	Price
12	14	34	28	32	615	\$160.00
13	21	38	32	40	800	180.00
14	27	42	36	42	950	200.00
15	42	48	38	48	1,175	220.00

**DUMP BUCKET**  
**Straight Sides**  
**Class "C"**



Fig. 724

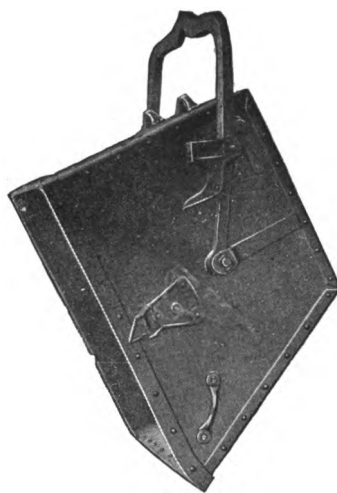


Fig. 725

The strongest Dump Bucket on the market. Made for those who want a good, strong, serviceable dump bucket that will stand all kinds of hard work and usage.

No.	Coal Capacity in Pounds	Capacity in Cu. Ft.	Length in Inches	Width in Inches	Depth in Inches	Price
0	300	6	33	26	19	\$42.00
1	400	8	36	29	22	48.00
2	500	10	41	30	24	54.00
3	600	12	42	33	25	60.00
4	700	14	47	33	26	69.60
5	800	16	48	35	27	78.00
6	900	18	48	37	29	87.40
7	1,050	21	48	43	30	96.00
10	1,350	27	52	46	31	102.00
16	1,800	36	58	52	33	120.00
19	2,100	42	60	56	34 $\frac{3}{4}$	138.00

## Elevators

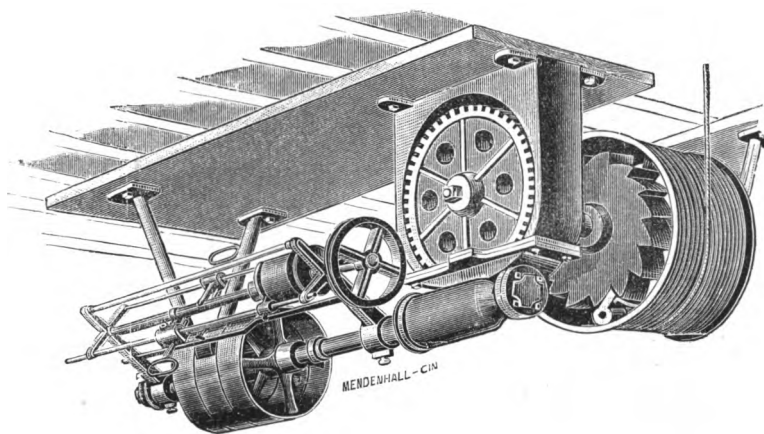


Fig. 726

The above cut represents our Improved Worm Gear Winding Rig for Freight Elevators.

The housing is so arranged that it can be changed from a right to a left-hand machine, as may be required.

The worm is chased from a solid wrought iron forging, and is finished  $5\frac{1}{2}$ -inch diameter and  $1\frac{1}{2}$ -inch pitch, and is part of the driving shaft.

The shifting device is the most simple and effective of any in use. It can be swung to any point to accommodate the line of belts. It moves but one belt at a time, and when both belts are on the loose pulleys, the brake is firmly set on the tight pulley, thereby securely holding the platform at any desired landing.

The worm-wheel is of undoubted strength, 24 inches in diameter, 50 teeth. The teeth are cast concave, which gives them large bearing surface. The pulleys are 24 inches in diameter, 4-inch face.

The winding drum is turned and grooved for the proper size cables, and is loose on the shaft, and is driven by ratchet-wheel and two pawls, and should the platform be accidentally stopped or fouled in descending, the drum immediately stops revolving, which prevents the cables from unwinding and dropping off of drum.

As a freight elevator for foundries and factories where line shaft drives are used, this machine has no superior.

We also supply a line of belt, electric, and hand-power elevators for foundry purposes.

ELEVATOR PLATFORMS

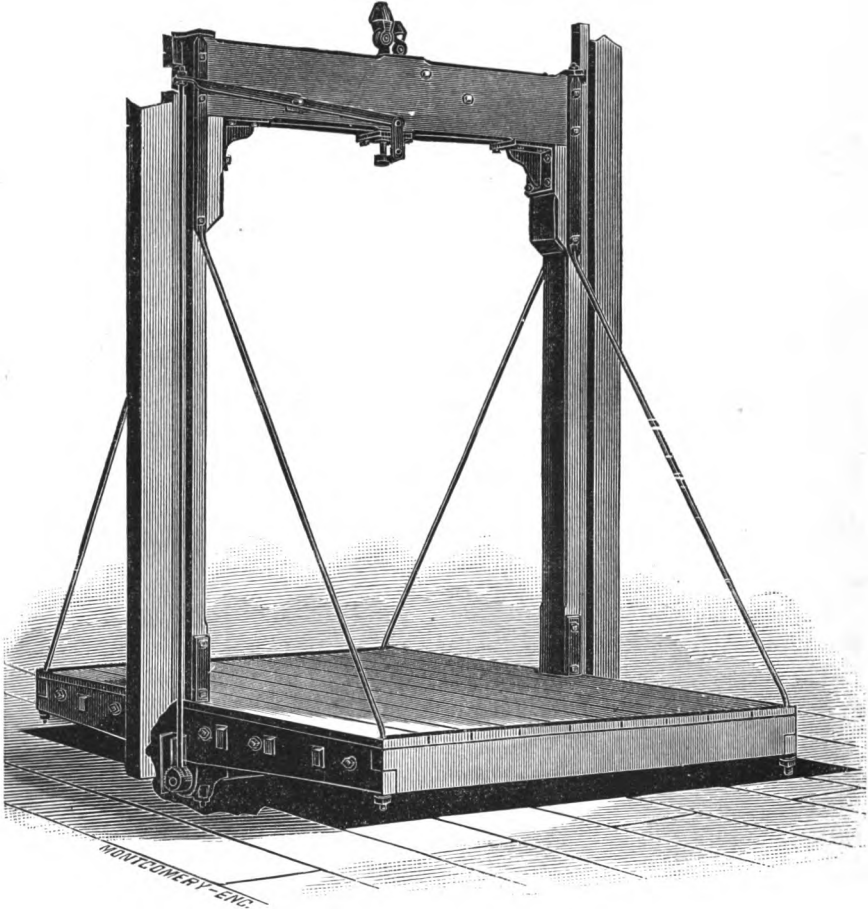


Fig. 727

The above illustration shows the standard platform we furnish on elevators. This platform is built of hardwood, with hardwood floor, iron-bound on loading sides.

We can also furnish platforms of all steel, with hardwood floor, when desired.

Platforms are provided with Improved Steel Safety Dogs, which are attached to underside of platform, and are arranged to grip the guide strips sideways, thereby preventing the spreading of guide-posts.

Made in capacities from 1,000 to 7,000 pounds.

Further information on request.

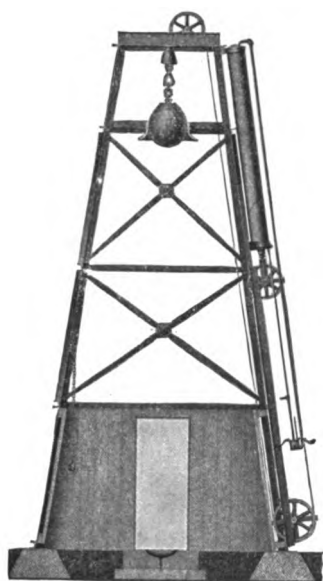


Fig. 728

## Curtis Casting Breaker or Wheel Drop Irons

Prices and weights are for 15-foot drop. Parts furnished are a balanced air hoist cylinder, with valve, sheave with hooded yoke. Bottom sheave; the cylinder sheaves and valve all self-contained on channel steel frame; sheave for top of tower, heavy cast-iron guide bell to steady ball at top position, automatic releasing tongs, trip-plate, wire rope and auxiliary chain for swinging ball to one side after dropping. Blueprint furnished for ball, but no ball. Average car-wheel ball weighs 1,800 pounds, and drops 22 feet.

Weight of the Drop Ball (80 lbs. air pres.)	1,200 lbs. (8" cyl.)	2,000 lbs. (10" cyl.)	3,000 lbs. (12" cyl.)	4,000 lbs. (14" cyl.)
Standard parts as listed above, for 15-foot drop or less, price.....	\$175.00	\$210.00	\$240.00	\$300.00
Extra for each additional foot drop over 15 ft.....	3.00	4.00	5.00	6.00
<b>Shipping Weight Standard</b>				
Parts for 15' lift.....	1,200 lbs.	1,400 lbs.	1,600 lbs.	2,000 lbs.
For automatic tongs only.....	\$35.00	\$35.00	\$40.00	\$40.00

Prices on steel towers, knocked down, furnished on application. We are prepared to furnish irons only for car-wheel test drops where weight can be released at any desired height.

729

## SAVE YOUR CASTINGS

Do not throw away castings marred by unimportant holes, cracks and spongy spots, but use our Buckeye Iron and Steel Filler Cement which is a metallic compound for use on iron and steel castings in filling these cracks, spongy spots and blow-holes and for many uses of similar character.

When applied to the castings it leaves a perfectly smooth surface, and if rightly applied it hardens quickly and resembles the casting, in fact it expands and contracts with it.

For further details on our Buckeye Iron and Steel Filler Cement, See page 32.



PORTABLE FLOOR CRANE AND HOIST

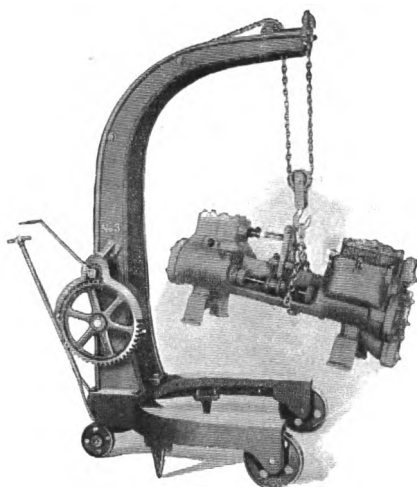


Fig. 730

**The Handiest Tool in the Shop**

Save time of your men by using this Portable Floor Crane and Hoist. It will lift and carry quickly where nothing else can go. It cuts the time lost in handling material in corners, around machinery, and under balconies. One man lifts, carries, and lowers 200 to 4,000 pounds with this device far quicker than a half dozen could by hand.

It is built in the strongest manner, fitted with roller bearings—easy to pull—is practically everlasting, and is always “on the job.”

The rear-wheel-two-bearing plan is also the only good strong construction, and found only in these cranes.

Can also be furnished with low beds  $6\frac{3}{4}$  inches high at same price as regular.

With low-base crane you can get under an article farther than with any other crane made.

Size	List Price	Total Height	Lift	Over-hang	Weight	Lifting Capacity
No. 1	\$100.00	5 ft. 8 in.	4 ft. 6 in.	2 ft. 3 in.	600 lbs.	2,000 lbs.
*No. 2	112.50	6 ft. 6 in.	5 ft. 4 in.	2 ft. 6 in.	740 lbs.	4,000 lbs.
*No. 3	125.00	7 ft. 6 in.	6 ft. 4 in.	2 ft. 9 in.	890 lbs.	5,000 lbs.
*No. 4	150.00	8 ft. 6 in.	7 ft. 4 in.	3 ft. 0 in.	1,150 lbs.	6,000 lbs.
No. 5	162.50	9 ft. 6 in.	8 ft. 3 in.	3 ft. 3 in.	1,300 lbs.	6,500 lbs.
No. 6	175.00	10 ft. 6 in.	9 ft. 3 in.	3 ft. 6 in.	1,550 lbs.	7,000 lbs.
No. 7	187.50	11 ft. 6 in.	10 ft. 3 in.	3 ft. 9 in.	1,800 lbs.	7,000 lbs.
No. 8	200.00	12 ft. 6 in.	11 ft. 3 in.	4 ft. 0 in.	2,000 lbs.	7,000 lbs.

\* Best sizes for average shop use.

## Roller Bearing Bridge Cranes



Fig. 731

### Single I-Beam Crane

Curtis Single I-Beam Cranes are built in capacities up to 10,000 pounds and in spans up to 35 feet, and in the Double I-Beam type are made in capacities up to 20,000 pounds and in spans up to 40 feet. The wheels are made with single or double flanges to suit conditions; have machined tread, and are bushed with genuine Hyatt Flexible Roller Bearings. The wheels are large in diameter, and the end trucks have a long wheel base and are rigidly braced with diagonals to the bridge beam. The large diameter wheels and high-grade bearings in both crane and trolley make these cranes operate very easily.

**HOIST.**—Either air hoists or chain blocks can be used in connection with these cranes, suspended from the trolley in either type. The double I-Beam type can also be furnished with an air hoist trunnion in the trolley.

Geared bridge travel is recommended for capacities over 4,000 pounds, or where it is desired to “spot” the load accurately. On cranes of 3,000 pounds and under, squaring shaft is connected direct to axle of two wheels; on greater capacities is geared to crane wheels by internal gearing. Bridge travel is always in the direction of the pull on the hand chains. Chain Sheave provided with guard.



Fig. 732

### Double I-Beam Crane

## CURTIS ALL-STEEL BRACKET JIB CRANES

Bracket Jib Cranes are the least expensive type of small-capacity cranes. They require posts and walls of considerable strength to withstand the heavy reactions, which, for a ratio of the length of jib to the height of mast of three to one and a capacity of the crane of 8,000 pounds, equals approximately 30,000 pounds pull on the upper pintle, and as much push on the lower.

Ratio of effective radius of jib to height of mast (center to center of pintles) is generally made three to one, and four to one should be considered as the maximum. The smaller the ratio, the less the pintle reaction.

Pintles are made of cast steel, and are provided with grease-cups for lubrication and babbitted with high-grade babbitt. Upper and lower forks for the diagonals are hinged, and so designed that adjustment of diagonals is possible. We are prepared to furnish pintle castings complete, including forks, shoe, grease-cups, hoist and trolley, but no diagonals, beam, mast rivets, bolts, or nuts, when customer prefers to assemble the crane.

**TROLLEY.**—Cranes are furnished with Curtis standard trolleys, either single I-beam type or trolley on top, wheels bushed with Hyatt Flexible Roller Bearings.

**SPAN AND CAPACITY.**—These cranes are made in effective radius up to 20 feet, and capacities up to 8,000 pounds.

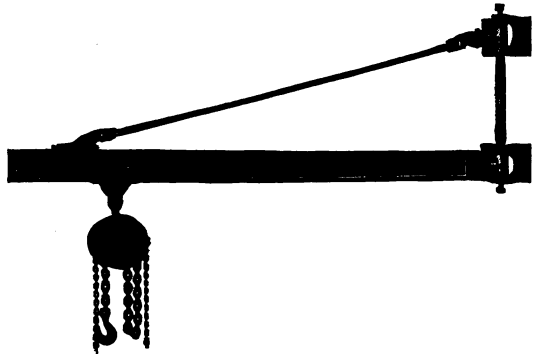


Fig. 733

Single I-Beam over Braced Jib Crane, Steel Pintles, Standard Curtis Trolley, Chain Hoist.

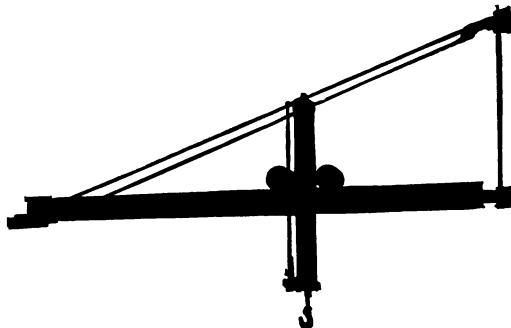


Fig. 734

Bracket Jib Crane. Over Braced. Trolley on Top Hoist in Trunnions

## Jib Crane

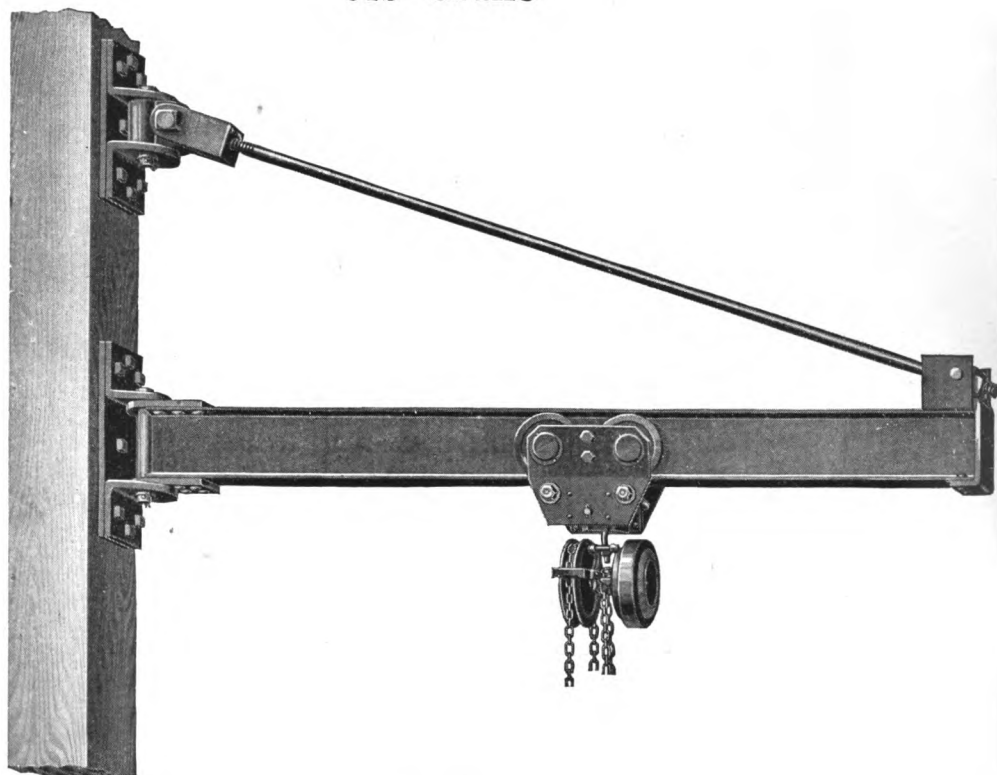


Fig. 735

This Jib Crane was designed for handling loads within a radius up to 15 feet and 180 degrees. Capacities, 2,000 to 6,000 pounds, 6, 7, 8, 9, and 10-inch I-Beams. Lengths, 12 to 18 feet. Heights, 5 feet to 6 feet 8 inches.

Prices on application.

When writing for prices, give capacity, height, and length.

### 736

### R-W I-BEAM TROLLEYS

Construction is extra heavy. Wheels, gray iron, and attached to independent axle, operating in two ball-bearings attached to frame. Load is evenly distributed on all four wheels. Following capacity is figured.

I-Beam Size	Capacity, Pounds	Diameter Wheels	Smallest Radius of Curve, Ins.	Width Over All	Price Each
5"	1,000	3 $\frac{1}{8}$	21	6 $\frac{3}{4}$ "	\$25.00
6"	2,000	4 $\frac{1}{8}$	21	7 $\frac{1}{2}$ "	32.00
7"	3,000	5 $\frac{3}{4}$	34	8 $\frac{1}{2}$ "	40.00
8"	4,000	6 $\frac{5}{8}$	36	9 $\frac{1}{2}$ "	48.00
9"	6,000	7 $\frac{1}{2}$	42	10 $\frac{1}{2}$ "	64.00

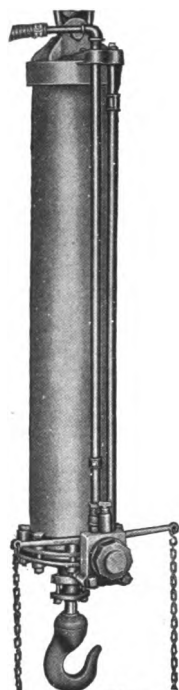


Fig. 737

## Curtis Patented Air Hoists

Design of Curtis various types of air hoists has been made to secure strength, durability, lightness, safety, dependability, low maintenance cost, accessibility of all working parts, and the best possible speed control.

Weight is minimum, less load to hang, less effort to move.

Strength is maximum, no unsafe loads suspended above your workmen.

LENGTH.—Minimum, horizontal hoists especially adapted to limited head-room.

STYLES.—Various styles of pendant, bracketed and rope compounded hoists.

PRESSURES.—Hoists are suitable for pressures as high as 110 pounds.

CAPACITIES.—Up to 20,000 pounds at 80 pounds air pressure. Always make allowance for at least 10 per cent possible drop in your air pressure.

VALVE.—The Curtis patented hoist valve is of the disc type, self-grinding, perfectly tight, wears slowly, and remains tight after years of constant use.

CYLINDERS.—Made of steel tubing, ground and polished on the inside, giving maximum strength with the least possible weight.

UPPER HEADS.—Cast steel, screwed to cylinders, for pendant hoists.

REAR HEADS.—Steel, bolted to screw rings, for bracketed hoists.

STUFFING-BOX HEADS.—Cast steel, with gland and die cast piston rod bushing on small sizes; brass bushing on large sizes. Heads bolted to screw rings.

RINGS.—Cast steel, screwed to cylinder, plain, bracket or plate type.

PISTON LEATHERS.—Special processed hydraulic leather, air-tight.

REMOVABLE PISTONS.—Leathers renewed by unbolting rear head on bracketed hoists or lower head on pendant hoists without dismantling hoists.

### CURTIS PENDANT AIR HOISTS—CLASSES A AND G

Nominal Inside Diameter of Hoist in Inches	Max. Ca'city at 80 lbs. Air 10% Friction Loss. See capacities above	Cubic Feet Free Air to Lift Full Load 1 Foot at 80 lbs. Air	Weight, 4-Foot Lift		Weight Each Additional Foot Lift		A in Inches
			Net in Pounds	Shipping in Pounds	Net in Pounds	Shipping in Pounds	
4	861	.54	80	105	11	20	16 <sup>7</sup> / <sub>8</sub>
5	1,356	.85	125	145	20	30	16 <sup>7</sup> / <sub>8</sub>
6	2,050	1.22	150	190	24	36	19 <sup>1</sup> / <sub>8</sub>
7	2,791	1.73	210	230	29	40	20 <sup>1</sup> / <sub>8</sub>
8	3,616	2.24	240	290	36	48	22 <sup>5</sup> / <sub>8</sub>
9	4,592	2.85	320	360	42	55	22 <sup>7</sup> / <sub>8</sub>
10	5,636	3.29	390	420	50	65	25 <sup>5</sup> / <sub>8</sub>
12	8,154	5.06	500	580	60	80	25 <sup>7</sup> / <sub>8</sub>
14	11,270	7.13	700	850	75	100	29 <sup>7</sup> / <sub>8</sub>
17	16,500	10.10	900	1,200	90	120	30 <sup>3</sup> / <sub>4</sub>
19	20,900	12.50	1,100	1,500	100	150	31 <sup>1</sup> / <sub>4</sub>

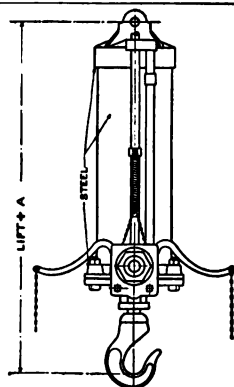


Fig. 738

CURTIS BRACKETED CYLINDER HOISTS

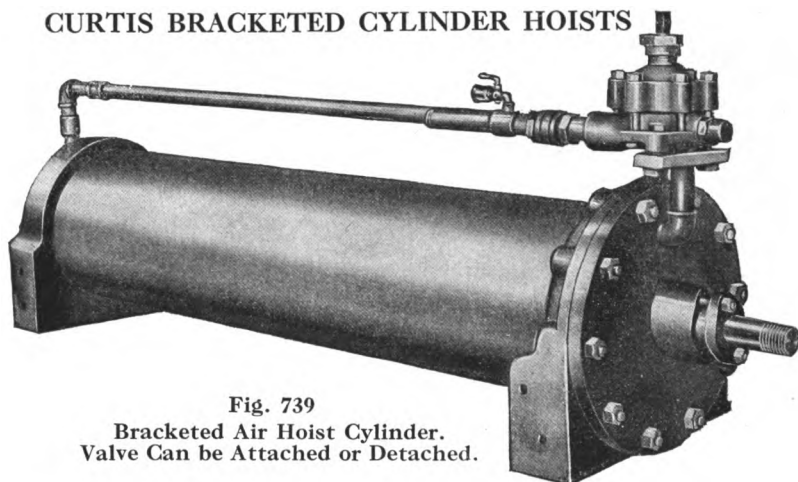


Fig. 739  
Bracketed Air Hoist Cylinder.  
Valve Can be Attached or Detached.

Bracketed Air-Hoist Cylinders can be placed in any position, from horizontal to vertical. The valve may be attached to the head or detached and placed in any convenient position. These cylinders can be furnished single-acting, double-acting, or balanced, with or without enlarged rod, with or without cushions and speed boxes. End of piston rod is threaded unless otherwise specified.

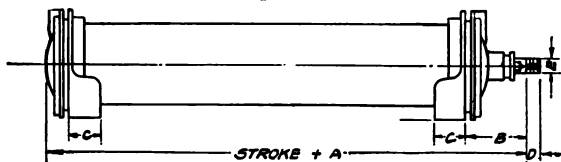


Fig. 740

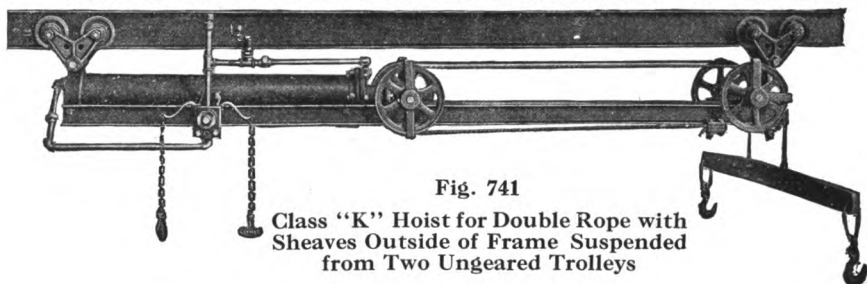
Curtis Bracketed Air Hoist Cylinders—Classes B, H, and J

Nominal Inside Diameter of Hoist in Inches	Maximum Capacity in Pounds at † 80 lbs. Air, 10% Friction Loss	Cubic Feet Free Air to Lift Full Load 1 Foot at 80 lbs. Air	Weight of Hoist with 4-Foot Lift		Addi- tional Net Weight of Each Foot over 4-Foot Lift	Dimensions of Classes B, H, and J With Standard Piston Rods					
			Net Pounds	Ship- ing Pounds		A †	A *	B	C	D	E
4	861	.54	80	105	11	10 1/4"	11 1/2"	6 1/8"	2 1/2"	1 1/8"	7/8"
5	1,356	.85	125	145	20	10 1/4"	11 1/2"	6 1/8"	3 "	1 1/8"	7/8"
6	2,050	1.22	150	190	24	11 1/4"	12 1/4"	6 5/8"	3 1/8"	1 1/4"	1 1/8"
7	2,791	1.73	210	230	29	11 1/4"	12 1/4"	6 1/2"	3 3/8"	1 1/4"	1 1/8"
8	3,616	2.24	240	290	36	12 1/2"	14 "	7 1/8"	3 1/2"	1 1/2"	1 3/8"
9	4,592	2.85	320	360	42	12 1/2"	14 "	7 1/8"	3 3/4"	1 1/2"	1 3/8"
10	5,636	3.29	390	430	50	14 "	15 3/4"	8 "	4 "	1 3/4"	1 5/8"
12	8,154	5.06	500	580	60	14 "	15 3/4"	7 7/8"	4 3/8"	1 3/4"	1 5/8"
14	11,270	7.13	700	850	75	15 "	16 3/4"	8 1/4"	5 "	2 "	1 11/8"
17	16,500	10.10	900	1,100	90	16 1/2"	18 1/2"	8 7/8"	5 "	2 1/4"	2 1/8"
19	20,900	12.50	1,100	1,400	110	16 1/2"	18 1/2"	8 5/8"	5 "	2 1/4"	2 1/8"

A † is to be added to stroke for over-all lengths of Classes B and H Hoists.  
A \* for Class J.

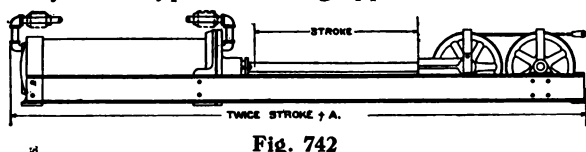
† Allow for at least a 10% drop in your air pressure.

**CURTIS ROPE-COMPOUNDED AIR HOISTS—CLASS K**



Portable Class K Hoists are furnished attached to two trolleys or fitted with roller bearing side wheels, attached to the channel frame. For lifting rolls of paper, trays, and similar loads, we recommend the hoists, when geared two to one, with double rope, as shown above.

**CHARACTERISTICS OF CLASS K HOISTS.**—As they are all of the balanced type, they are very smooth in operation, and therefore well adapted for hoisting where delicate speed control is necessary. The head-room required is far less than that for chain block, electric air motor, or any other power hoisting device. The maximum hoisting speed can be regulated by means of Curtis patented speed boxes, and be made faster than that of any other type of hoisting apparatus.



**BALANCED PRESSURE ROPE COMPOUNDED HOISTS—CLASS K**

Normal Diameter Cylinder, Inches		All Class K Hoists Have Enlarged Rod for Return of Piston by Air. Capacities are in Pounds Pull on the Rope, Proper Allowance Having Been Made for Friction. Allow for at least 10 per cent drop in your air pressure. Further Dimensions on Application.						
		Compounded 2 to 1 Rope Travel Twice Cylinder Stroke			Compounded 4 to 1 Rope Travel 4 Times Cylinder Stroke			Approx. Net Weight of Cylinder, Sheaves and Frame Four Foot Rope Travel
		Capacity	Air* Cons'p'n	A	Capacity	Air* Cons'p'n	A	
6"	250 lbs.	800 lbs.	.61	43"	400 lbs.	.30	43"	
7"	300 "	1050 "	.87	43"	525 "	.43	43"	
8"	400 "	1450 "	1.12	49"	700 "	.56	49"	
9"	450 "	1900 "	1.43	50"	950 "	.71	50"	
10"	500 "	2400 "	1.70	51"	1150 "	.82	51"	
12"	650 "	3500 "	2.53	56"	1400 "	1.25	52"	
14"	900 "	4800 "	3.57	59"	2400 "	1.78	57"	
17"	1200 "	7000 "	5.05	65"	3500 "	2.50	58"	
19"	1400 "	9000 "	6.25	65"	4500 "	3.10	58"	

\* Air consumption in free air at 80-lb. pressure is figured for one foot of rope travel.

## Yale Chain Blocks

### DUPLEX BLOCK

The Duplex Chain Block is fitted with safety guides, which prevent the load-chain from slipping.

The load is carried by two distinct chains. Each chain has ample strength to carry load up to the rated capacity of block.

The worm-wheel is of bronze, and the worm of steel, which has hardened and ground thrust bearings, run in oil.

#### CAPACITIES FROM ONE-HALF TO TEN TONS

Capacity Tons	Test Load in Tons, 2240 Lbs. to the Ton	Price Complete	Regular Hoist, in Feet*	Extra Hoist, Price per Foot†	Min. Distance Between Hooks in Inches	Gross Weight in Lbs.
$\frac{1}{2}$	$\frac{3}{4}$	\$25.00	8	\$1.00	13	53
1	$1\frac{1}{2}$	30.00	8	1.10	16	69
$1\frac{1}{2}$	$2\frac{1}{4}$	40.00	8	1.20	19	95
2	3	50.00	9	1.30	21	125
3	$4\frac{1}{2}$	75.00	10	1.50	25	212
4	6	95.00	10	1.60	29	250
5	$7\frac{1}{2}$	140.00	12	2.40	31	375
6	9	180.00	12	2.50	33	365
8	12	210.00	12	2.70	36	418
10	15	275.00	12	3.25	45	626

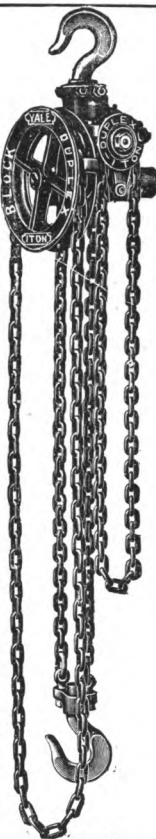


Fig. 743

### TRIPLEX BLOCKS

The Triplex Block is the strongest, quickest, and easiest block to operate.

Each block is tested to 50% overload of its rated capacity. This percentage is based on long ton of 2,240 pounds. It is very simple, and has few parts. Steel Safety Hook made of special steel for this particular purpose. Chain is tested at two and one-half times its rated capacity.

#### CAPACITIES FROM ONE-QUARTER TO TWENTY TONS

Rated Capacity in Tons 2240 Lbs. to the Ton	Test Load in Tons 2240 Pounds to the Ton	List Price			Minimum Distance Between Hooks	Gross Weight
		Complete Block with Stand. Hoist	Standard Hoist in Feet*	Extra Hoist per Foot†		
$\frac{1}{4}$	$\frac{3}{8}$	\$35.00	8	\$0.90	13 ins.	75 lbs.
$\frac{1}{2}$	$\frac{3}{4}$	35.00	8	.90	13 "	75 "
1	$1\frac{1}{2}$	45.00	8	.95	16 "	145 "
$1\frac{1}{2}$	$2\frac{1}{4}$	60.00	8	1.00	18 "	160 "
2	3	70.00	9	1.05	21 "	240 "
3	$4\frac{1}{2}$	90.00	10	1.50	32 "	250 "
4	6	110.00	10	1.60	37 "	350 "
5	$7\frac{1}{2}$	140.00	12	2.15	45 "	480 "
6	9	165.00	12	2.15	46 "	480 "
8	12	200.00	12	2.70	49 "	575 "
10	15	240.00	12	3.25	54 "	700 "
12	18	300.00	12	4.30	54 "	1100 "
16	24	360.00	12	5.40	62 "	1300 "
20	30	425.00	12	6.50	70 "	1675 "

\* Figures denote height in feet which blocks with regular lengths of chain will hoist above level on which operator stands.

† "Extra Hoist Per Foot" includes sufficient hand and load chain to increase the travel of the lower hook 1 foot.



Fig.  
744



## Carrying Track Systems

Full-sized Vertical Cross Sections of Two Sizes of "Round Trough" Trolley Tracks for Overhead Tramways or Carrying Tracks

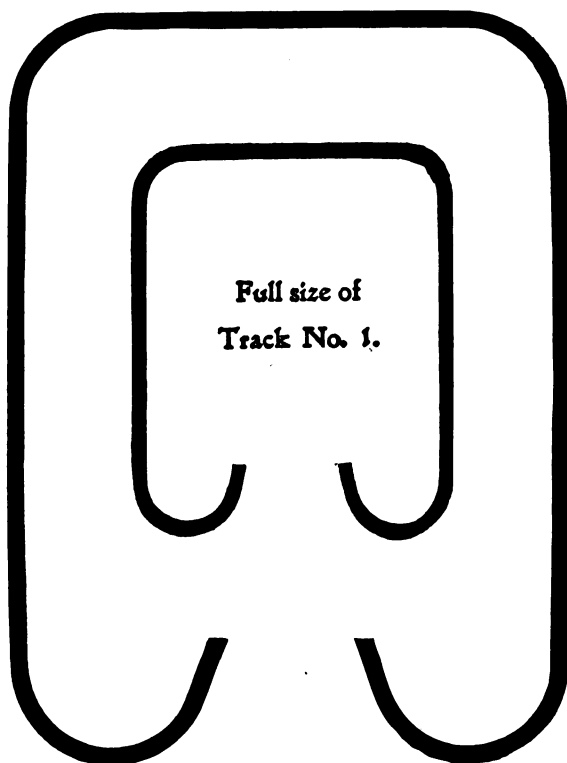


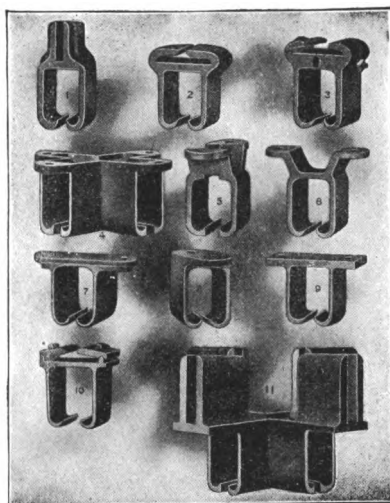
Fig. 745

Track No. 4

Track No.		Straight Track, Per Foot	Curved Track, Per Foot
1	Used for loads up to 300 lbs.....	\$0.40	\$1.00
2½	Used for loads up to 500 lbs.....	.60	1.50
4	Used for loads up to 2,000 lbs.....	.80	2.00
4½	10-gauge. Used for loads up to 4,000 lbs.	1.00	2.50

**TRACK BRACKETS  
For Overhead Track**

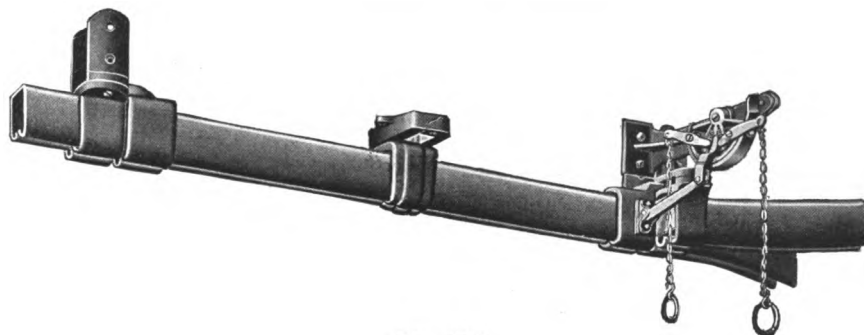
PRICE LIST			
Bracket	Track No. 1	Track No. 2½	Track Nos. 4 and 4½
1	\$0.80	\$1.20	\$1.70
2	.....	.....	2.00
3	.....	.....	2.50
4	5.00	7.00	10.00
5	.....	.....	1.50
6	.....	.....	1.50
7	.60	.90	1.50
8	.60	.90	1.20
9	.....	.....	1.20
0	.....	.....	2.50
11	.....	.....	12.00



**Fig. 746**

Brackets not listed are not carried in stock.

**REGULAR SINGLE SWITCH  
For Overhead Track**



**Fig. 747**

This style of switch is used with Nos. 2½, 4, 4½, and 5 rail.

PRICE LIST		
Track No.	Single	Double
2½	\$20.00	\$24.00
4	24.00	32.00
4½	24.00	32.00
5	30.00	40.00

Tongues made in 4 and 5-foot lengths.

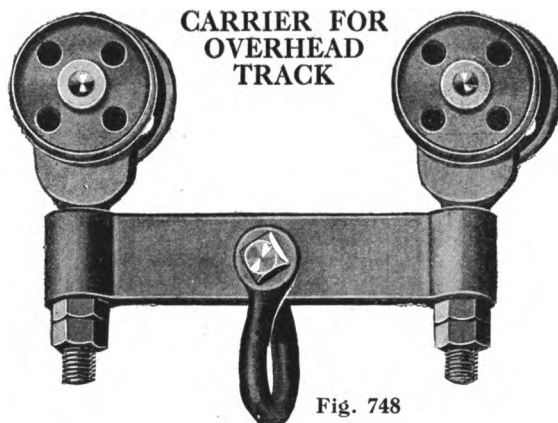


Fig. 748

Regular Single Carrier

	Capacity	Price
No. 1 Rail.....	150 lbs.	\$10.00
No. 2½ Rail.....	300 lbs.	15.00
No. 4 Rail.....	500 lbs.	22.50
No. 4 or 4½ Rail.....	1,000 lbs.	30.00

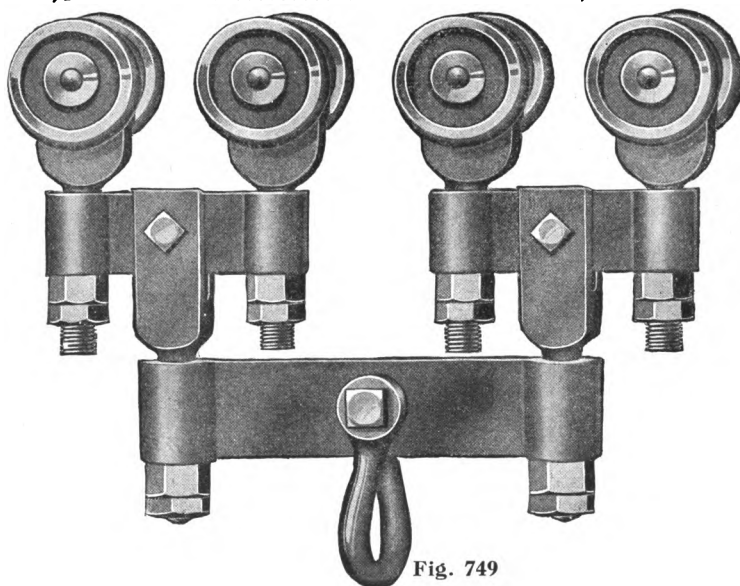
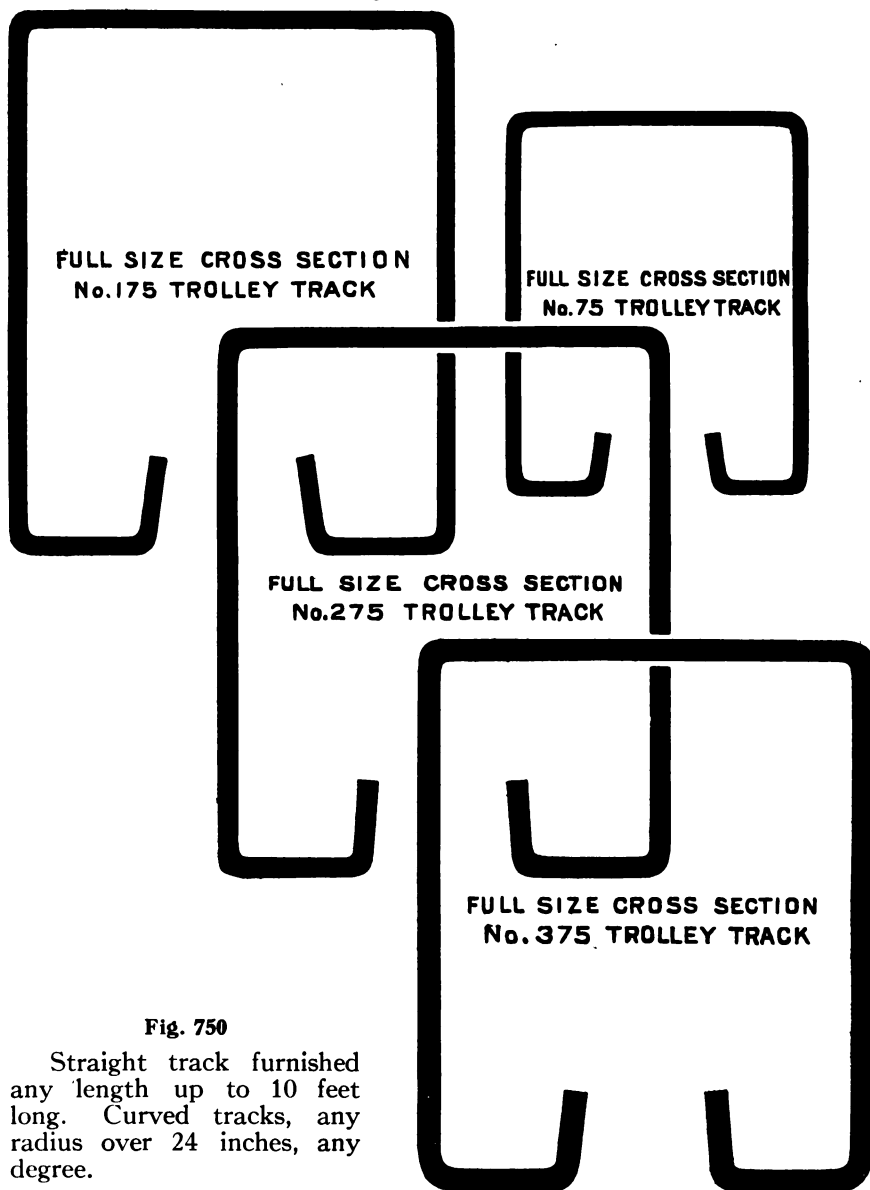


Fig. 749

Regular Double Carrier

	Capacity	Price
No. 1 Rail.....	300 lbs.	\$24.00
No. 2½ Rail.....	500 lbs.	30.00
No. 4 Rail.....	2,000 lbs.	45.00
No. 4½ Rail.....	3,000 lbs.	55.00
No. 4¾ Rail.....	4,000 lbs.	70.00

## R-W Trolley Overhead Track



**Fig. 750**

Straight track furnished any length up to 10 feet long. Curved tracks, any radius over 24 inches, any degree.

Track No.	Gauge	Weight per Ft.	Straight, per Ft.	Curved, per Ft.
75	14	2 lbs.	\$0.20	\$1.30
175	13	4 lbs.	.48	2.00
275	12	4½ lbs.	.50	2.10
375	10	5¾ lbs.	.54	2.20

## R-W Trolley Overhead Ball-Bearing Swivel Carriers

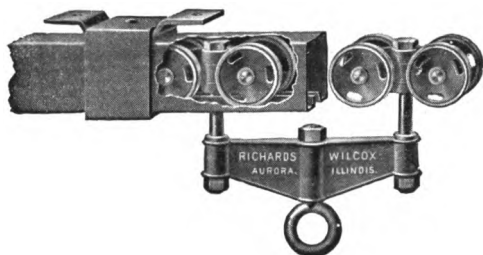


Fig. 751

CARRIERS WILL NOT OPERATE IN CURVES SMALLER THAN 24 INCH RADIUS. Wheels are gray iron, lathe-turned. Bearings, high-duty steel balls; frames, drop-forged, knuckle-jointed, with heavy steel pendants. Connecting bars malleable iron. Eye-bolt drop-forged and heat-treated.

The capacities specified below are figured to allow a liberal factor of safety.

Number	For Track Number	Capacity in lbs.	Diam. of Wheels, in.	Length, Inches	Bottom of Track to Bottom of Eye	Price List
31	75	250	2 $\frac{1}{8}$	5	2 $\frac{3}{4}$	\$3.50
32	75	500	2 $\frac{1}{8}$	12	5 $\frac{1}{2}$	7.40
33	75	1,000	2 $\frac{1}{8}$	27	8 $\frac{1}{4}$	15.00
34	175	600	3	7	3	8.00
35	175	1,250	3	16	6 $\frac{1}{4}$	15.00
36	175	2,500	3	34	10 $\frac{3}{4}$	24.00

## R-W TROLLEY OVERHEAD SWITCHES

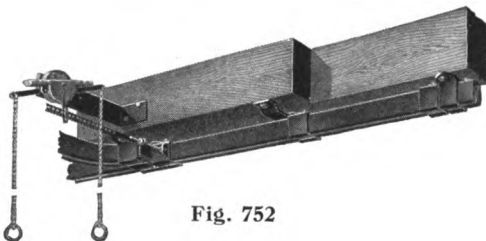


Fig. 752

Cut above shows section of straight and curved track, with two-way switch. Positive locking attachment. Can also furnish same style in three-way switch.

Number	Track No.	Length, Feet	Height, Inches	Space Required Above Bottom of Track, Inches	Weight, Lbs.	Price
31-2	way 75	4	3 $\frac{1}{2}$	11	53	\$13.00
31-3	" 75	4	3 $\frac{1}{2}$	11	58	20.00
33-2	" 175	4	4 $\frac{3}{4}$	11	75	16.00
33-3	" 175	4	4 $\frac{3}{4}$	11	83	24.00

# R-W TROLLEY OVERHEAD ROLLER BEARING SWIVEL CARRIERS

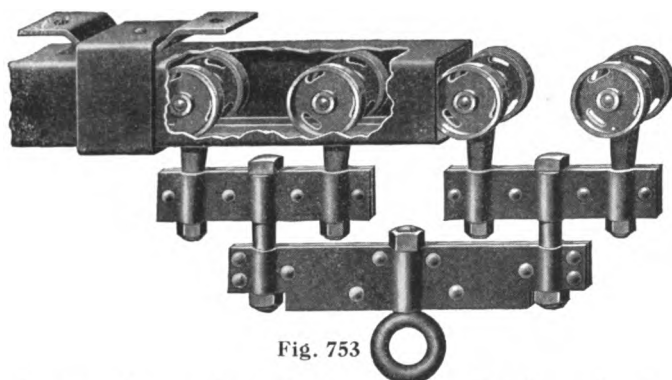


Fig. 753

Wheels are of gray iron, lathe-turned. Bearings, hardened steel rollers. Pendants drop-forged, each set forms a complete unit, which swivels independently, permitting carrier to operate in either straight or curved track. Frames and connecting bars of heavy steel construction. Eye-bolt drop-forged and heat-treated.

Number	Track No.	Capacity, Pounds	Diam., Wheels	Length, Inches	Bottom of Track to Bottom of Eye	Price Each
10	175	3,000	3	44	13 1/4	\$20.00
11	175	1,500	3	21	9 1/4	12.00
12	75	1,000	2 1/8	31	10	12.00
13	75	500	2 1/8	14	6 3/4	6.40
14	75	250	2 1/8	7	4 1/2	3.00
15	175	750	3	9	5 1/2	5.00

# R-W TROLLEY OVERHEAD TURNTABLE

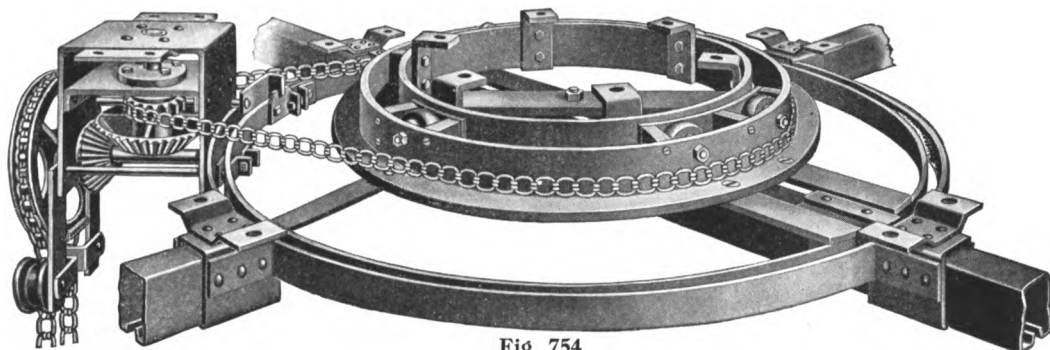


Fig. 754

Diam.	Track No.	Height Over All	Capacity	Price
12"	75	8	250 lbs.	\$70.00
21"	75	8	500 "	80.00
38"	75	8	1,000 "	100.00
15"	175	9	750 "	80.00
27"	175	9	1,500 "	90.00
50"	175	9	3,000 "	110.00

R-W TROLLEY OVERHEAD CARRYING TRACK BRACKETS

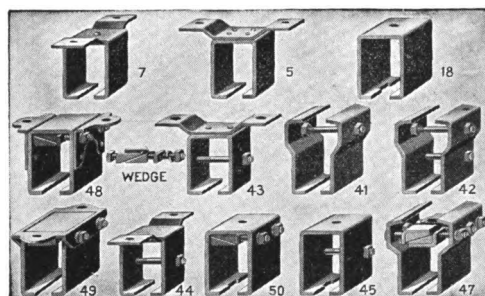


Fig. 755

Bracket No.		For Track No. 75	Each 175-275 375
5	Cross ear ceiling center bracket . . . . .	\$0.16	\$0.44
7	Parallel ear ceiling center bracket . . . . .	.16	.44
18	Plain ceiling center bracket . . . . .	.16	.44
41	I-beam center bracket . . . . .	.40	.60
42	I-beam end bracket, with bolt . . . . .	.40	.60
43	Cross ear ceiling R or L end bracket, with bolt. . . . .	.40	.60
44	Parallel ear ceiling R or L end bracket, with bolt. . . . .	.40	.60
45	Plain ceiling R or L end bracket, with bolt . . . . .	.40	.60
47	I-beam joint bracket, with wedge . . . . .	*	1.80
48	Cross ear ceiling joint bracket, with wedge . . . . .	*	1.80
49	Parallel ear ceiling joint bracket, with wedge . . . . .	*	1.80
50	Plain ceiling joint bracket, with wedge . . . . .	*	1.50

Numbers and description. List prices for black enamel finish.

IMPORTANT.—Always specify catalog number of track for which brackets are desired and finish.

EXAMPLE.—If a No. 5 bracket for No. 75 track is wanted, show as follows: 5 x 75; if for No. 175 track, show 5 x 175 bracket, etc. No. 275 and No. 375 brackets are same as No. 175.

NOTE.—\* indicates “Not manufactured for this type of track.”

Joint brackets with wedge should be used on every track joint, to insure proper results. For galvanized brackets, add 25% to above list prices on No. 75 track, and 30% on No. 175-275-375 track.

When ordering I-Beam brackets, always specify sizes and weight per foot of I-Beam. Unless otherwise specified, brackets for standard light sections will be sent.

Prices on special brackets to meet any conditions furnished on request.

## Trolley "Brownhoist"

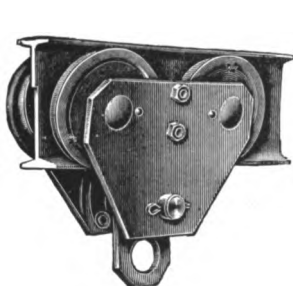


Fig. 756

Plain Steel Plate Trolley



Fig. 757

Cast Iron Trolley

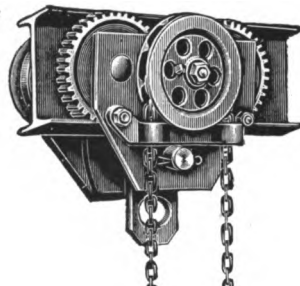


Fig. 758

Geared Steel Plate Trolley

**Fig. 756.**—These trolleys are built to give the highest possible service for the longest period of time. This means a good return on the money invested.

Steel side plates, chilled tread wheels, bronze self-oiling bearings or roller bearings are used. The pin construction allows the trolley to be assembled on the I-beam track at any point; it also allows the trolley to be furnished with adjusting washers so as to fit sizes of I-beam other than standard.

**Fig. 757.**—These trolleys are built to meet the demand for a cheaper trolley than the Plain Steel Plate Trolley. Either plain or roller bearings are supplied on the one-ton size and larger.

**Fig. 758.**—These trolleys have all the advantages of construction contained in the Plain Steel Plate Trolley. The Gear Drive allows the traveling of heavy loads with great ease. Generally used for three tons and above.

Capacity in Tons	Standard Size of I-Beam	Greatest Distance Between Supports	Diameter of Tread of Wheels	Price Plain Trolley	Price Cast Iron Trolley		Price Geared Trolley
					Plain Bearing	Roller Bearing	
$\frac{1}{4}$	4 in.	13 feet	3 ins.	\$14.00	\$7.00	.....	.....
$\frac{1}{2}$	5 "	14 "	$3\frac{3}{4}$ "	16.00	8.00	.....	.....
1	6 "	14 "	$4\frac{3}{4}$ "	20.00	10.50	\$17.50	\$40.00
$1\frac{1}{2}$	7 "	15 "	$5\frac{1}{2}$ "	25.00	13.50	22.00	45.00
2	8 "	16 "	$6\frac{1}{2}$ "	30.00	17.00	27.00	50.00
3	9 "	16 "	$7\frac{1}{4}$ "	40.00	.....	37.50	60.00
4	10 "	16 "	$8\frac{1}{4}$ "	50.00	.....	.....	70.00
5	12 "	18 "	10 "	65.00	.....	.....	90.00
6	15 "	22 "	10 "	80.00	.....	.....	100.00
8	20 "	29 "	12 "	95.00	.....	.....	110.00
10	24 "	34 "	13 "	110.00	.....	.....	130.00
12	24 "	23 "	13 "	110.00	.....	.....	130.00
15	24 "	20 "	18 "	180.00	.....	.....	220.00
20	24 "	16 "	18 "	200.00	.....	.....	250.00

Three-ton trolleys and above are standard, with roller bearings.



## Curtis Safe, Easy Running I-Beam Trolleys

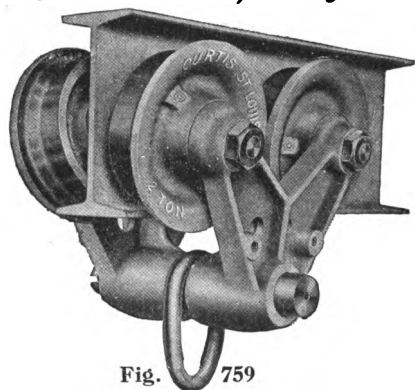


Fig. 759

**Curtis Non-Geared I-Beam Trolley with Adjustable Spread Cast Steel Load Equalizing Frame.**

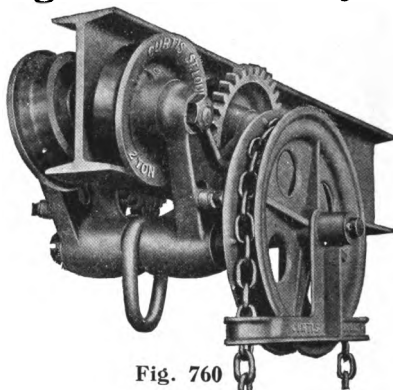


Fig. 760

**Curtis Geared I-Beam Trolley with Adjustable Spread Cast Steel Load Equalizing Frame.**

Curtis Single I-Beam Trolleys are made with either plain or Hyatt Roller Bearings, geared or non-geared. The plain bearing is recommended for occasional or light service where an inexpensive trolley will answer.

**CAPACITIES.**—Up to 20,000 pounds, in five different sizes.

**BEAM SIZES.**—Each capacity trolley is adjustable for several different size standard I-beams, without taking down trolley or taking trolley apart.

**BEARINGS.**—Hyatt Flexible Roller Bearings running in steel shell, non-crushing, shock-absorbing, and self-lubricating, or plain self-oiling bushings, which are interchangeable with the Hyatt.

**WHEELS.**—Maximum diameter for the minimum size-beam with anti-friction flanges. Wheels running perpendicular to beam tread; no climbing friction.

**SIDE FRAMES.**—Cast steel ribbed, giving maximum strength and minimum weight. Frames made in two halves, equalizing the load on all four wheels.

**GEARING.**—All trolleys can be geared, if desired, with hand chain attachments for propelling the trolley; chain wheel equipped with chain guard.

**SAFETY.**—Factor of safety of five throughout.

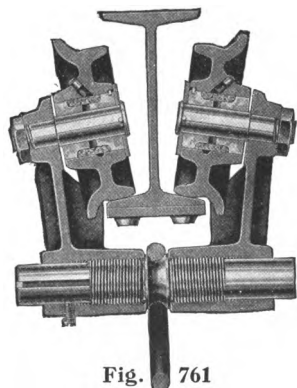


Fig. 761

**Curtis I-Beam Trolley with Hyatt Roller Bearing**



Fig. 762

**Hyatt Flexible Roller Bearing and Shell**



Fig. 763

**Plain Self-Oiling Bushing**

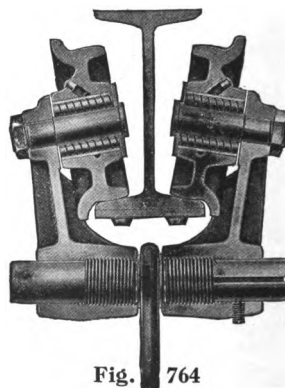
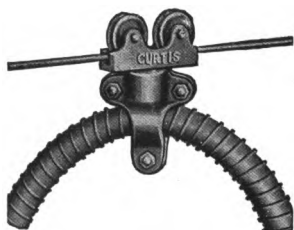


Fig. 764

**Curtis I-Beam Trolley with Self-Oiling Bearings**

Prices on application.

## HOSE CARRYING TROLLEYS



**Fig. 765**  
**For Wire or Cable**



**Fig. 766**  
**For I-Beam**

Hose Carrying Trolleys for supporting hose to movable hoists are made to run on a wire, a cable, or lower flanges of an I-beam on trolleys. The hose is gripped by a swivel clamp.

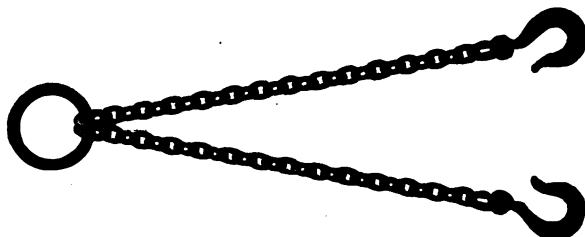
**Fig. 765.**—Two-Wheel Trolleys, 3/16-inch wire, up to 150-foot span,  
for 1/2, 3/4, and 1-inch hose.....each, \$2.00

For 3/8-inch wire, up to 300-foot span, for 1/2, 3/4, and  
1-inch hose.....each, 3.00

**Fig. 766.**—Four-Wheel Trolleys for 3 and 4-inch I-Beams.....each, 5.00

For 6, 8, 10, 12, and 15-inch I-Beams.....each, 7.00

## CHAIN SLINGS



**Fig. 767**

Made from the highest grade material, carefully tested and inspected. They are made of any size. Chain in any length, width any number of branches.

In ordering, state capacity in tons, length over all, style of hook and size of opening and diameter of ring. If possible, send sketch of hook wanted when writing for prices.

**768**

## ROPE SLINGS

Rope Slings made to order only. In ordering, give length over all, diameter of rope, and length of eye.

Prices quoted on application

## "Universal" Industrial Turntables

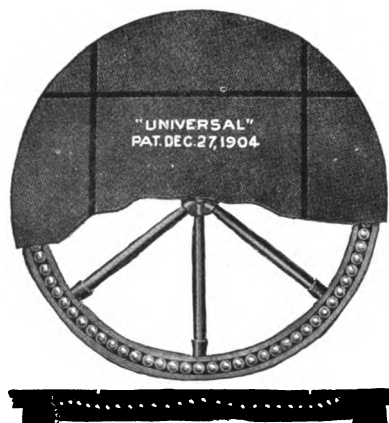


Fig. 769

These turntables are neat, strong, and substantially built, and are easily turned by one man when loaded to capacity of from five to six tons. The distinctive feature of the ball race allows these tables to turn 75% easier than any other turntable.

The table is revolved on a serpentine circular track, filled with 2, 2½, and 3-inch balls, according to diameter of table. Friction is reduced to a minimum, as the weight of the table rests only on those balls at the highest points, pockets wherein lubricating oil is stored.

Owing to the simplicity of construction, "UNIVERSALS" positively will not get out of order. Furthermore, they are dirt-proof, as the ball-bearings are so protected that no dirt can accumulate therein.

"Universals" are approximately 6 inches in depth, and may be set in any flooring without necessitating as extensive excavations as other tables.

The locking device furnished with "Universals" No. 2 and No. 3 is positive, automatic, and at all times out of the way.



Fig. 770 No. 1

No. 1 "Universal" Serpentine Track, Ball Bearing Turntable, made with plain checkered top, without grooved track.



Fig. 771 No. 2

No. 2 "Universal" Serpentine Track, Ball Bearing Turntable, made with grooved track, top, and locking device.

	Without Locking Device	With Locking Device	With Locking Device and Guard Rails
3 ft. 6 in. 18 to 24 gauge.....	\$64.00	\$70.00	\$87.00
4 ft. 18 to 30 gauge.....	68.00	92.00	109.00
5 ft. 18 to 36 gauge.....	76.00	100.00	117.00
6 ft. 18 to 48 gauge.....	121.00	135.00	150.00
8 ft. 48 and upward.....	308.00	320.00	341.00

No. 3 "Universal" Serpentine Track, Ball Bearing Turntable is same as No. 2, with guard-rails additional.

When inquiring for discounts and ordering, state style, number of tables required, gauge of track, and wheel base of cars; or diameter of tables if flange of wheels runs on the outside; state so; otherwise, gauge is assumed to be inside of rails. Advise depth of flange also.

# Molders' Tools

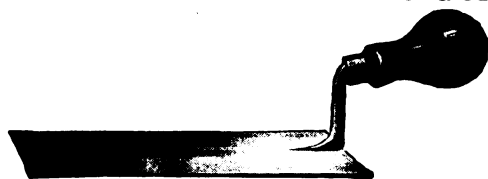


Fig. 772—Square Trowel

Width, Ins.	4½	5	5½	6	6½	7
1	\$0.50	\$0.55	\$0.60	\$0.65	.....	.....
1¼	.55	.60	.65	.70	.....	.....
1½	.65	.70	.75	.80	\$0.85	\$0.95
1¾	.....	.80	.85	.90	.95	1.05
2	.....	.90	.95	1.00	1.05	1.15

About 50 per cent of the trowels sold are 1½x6 inches in both the square and finishing.



Fig. 773—No. 1 Finishing Trowel

Width, Ins.	5	5½	6	6½	7
1¼	\$0.60	\$0.65	\$0.70	.....	.....
1½	.70	.75	.80	\$0.85	\$0.95
1¾	.80	.85	.90	.95	1.05



Fig. 774—No. 2 Finishing Trowel

Width, Ins.	5	5½	6	6½	7
1¼	\$0.60	\$0.65	\$0.70	.....	.....
1½	.70	.75	.80	\$0.85	\$0.95
1¾	.80	.85	.90	.95	1.05

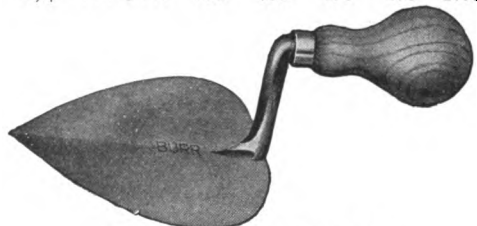


Fig. 775—Heart Trowel

Width, Inches.....	2	2½	2½	3
Each.....	\$0.60	\$0.75	\$0.85	\$1.00



Fig. 776—No. 1 Stove Tool

Width, Inches, ⅜	½	⅝	¾	1
Each.....	\$0.45	\$0.50	\$0.55	\$0.60



Fig. 777—No. 2 Stove Tool

Width, Inches.....	⅝	¾
Each.....	\$0.40	\$0.45



Fig. 778—No. 3 Stove Tool

Width, Inches.....	⅝	¾
Each.....	\$0.40	\$0.45



Fig. 779—No. 4 Stove Tool

Width, Inches.....	¾
Each.....	\$0.50



Fig. 780—No. 5 Stove Tool

Width, Inches.....	⅝	¾
Each.....	\$0.40	\$0.45



Fig. 781—Oval Stove

Width, Inches.....	⅝
Each.....	\$0.45



Fig. 782—Slick and Flute

Width, Inches.....	⅜
Each.....	\$0.45



Fig. 783—Slick and Bead

Width, Inches.....	⅜
Each.....	\$0.45



Fig. 784—Slick and Spoon

Width, Inches.....	⅜
Each.....	\$0.45



Fig. 785—Gate Cutter

Width, Inches.....	½	⅝
Each.....	\$0.50	\$0.55

MOLDERS' TOOLS



Fig. 786—Gate Cutter and Spoon

Width, inches.....	1	1 1/4	1 1/2
Each.....	\$0.50	\$0.60	\$0.70



Fig. 787—No. 1 Bench Lifter

Width, Inches	3/16	1/4	3/8	1/2	5/8	3/4
Each.....	\$0.30	\$0.35	\$0.45	\$0.50	\$0.55	\$0.60



Fig. 788—No. 2 Bench Lifter

Width, Inches.....	7/16	9/16	11/16
Each.....	\$0.40	\$0.45	\$0.50



Fig. 789—Bench Lifter (Bent)

Width, Inches.....	3/8	1/2	5/8	3/4
Each.....	\$0.45	\$0.50	\$0.55	\$0.60



Fig. 790—Yankee

Width, Inches.....	1/2	5/8	3/4	1
Each.....	\$0.50	\$0.55	\$0.60	\$0.70



Fig. 791—No. 2 Yankee

Width, Inches.....	1/2	5/8	3/4	1
Each.....	\$0.50	\$0.55	\$0.60	\$0.70



Fig. 792—No. 2 Bench Lifter (Bent)

Width, Inches.....	1/2	5/8	3/4	1
Each.....	\$0.50	\$0.55	\$0.60	\$0.70



Fig. 793—No. 3 Bench Lifter

Width, Inches.....	3/8	1/2	5/8	3/4
Each.....	\$0.45	\$0.50	\$0.55	\$0.60



Fig. 794—No. 3 Bench Lifter (Bent)

Width, Inches.....	3/8	1/2	5/8	3/4	1
Each.....	\$0.45	\$0.50	\$0.55	\$0.60	\$0.70



Fig. 795—Leaf and Square—Special

This tool is 10 inches long, with blades 7/8x3 inches, with double curved Shank.  
Each.....\$0.65



Fig. 796—Heel Slick

This tool is 8 inches long, with blades 7/8x2 1/4 inches; heel, 1/2x7/8 inch. Each, \$0.65

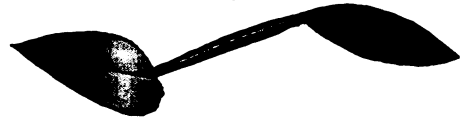


Fig. 797—Heart and Leaf

<b>Width, Ins.</b>	<b><math>\frac{3}{4}</math></b>	<b>1</b>	<b><math>1\frac{1}{4}</math></b>	<b><math>1\frac{1}{2}</math></b>	<b><math>1\frac{3}{4}</math></b>	<b>2</b>
<b>Each.....</b>	<b>\$0.45</b>	<b>\$0.50</b>	<b>\$0.60</b>	<b>\$0.70</b>	<b>\$0.80</b>	<b>\$0.90</b>



Fig. 798—Heart and Square

<b>Width, Ins.</b>	<b><math>\frac{3}{4}</math></b>	<b>1</b>	<b><math>1\frac{1}{4}</math></b>	<b><math>1\frac{1}{2}</math></b>	<b><math>1\frac{3}{4}</math></b>	<b>2</b>
<b>Each.....</b>	<b>\$0.45</b>	<b>\$0.50</b>	<b>\$0.60</b>	<b>\$0.70</b>	<b>\$0.80</b>	<b>\$0.90</b>



Fig. 799—No. 1 Taper and Square

Width, Inches.....	3/4	1	1 1/4	1 1/2
Each.....	\$0.50	\$0.55	\$0.65	\$0.75



Fig. 800—No. 2 Taper and Square

<b>Width, Inches,</b>	<b><math>\frac{5}{8}</math></b>	<b><math>\frac{3}{4}</math></b>	<b>1</b>	<b><math>1\frac{1}{4}</math></b>	<b><math>1\frac{1}{2}</math></b>
<b>Each.....</b>	<b>\$0.45</b>	<b>\$0.50</b>	<b>\$0.55</b>	<b>\$0.65</b>	<b>\$0.75</b>



Fig. 801—No. 3 Taper and Square

Width, Inches.....	1
Each.....	\$0.55



Fig. 802—Slick and Square Spoon

Width, Inches.....	1 1/8
Each.....	\$0.60

MOLDERS' TOOLS



Fig. 803—Taper and Square Spoon

Width, Inches.....	1	1¼	½
Each.....	\$0.55	\$0.65	\$0.75



Fig. 804—Slick and Oval Spoon

Width, Inches....	¾	1	1¼	1½
Each.....	\$0.50	\$0.55	\$0.65	\$0.75



Fig. 805—Heart and Square Spoon

Width, Inches....	1	1¼	1½	1¾
Each.....	\$0.50	\$0.60	\$0.70	\$0.80



Fig. 806—Heart and Oval Spoon

Width, Inches....	1	1¼	1½	1¾
Each.....	\$0.50	\$0.60	\$0.70	\$0.80



Figs. 807, 808, and 809—1, 2, and 3 Spoons			
Width, Inches.....	1	1¼	1½
Each.....	\$0.50	\$0.60	\$0.70



Fig. 810—Slick and Bead

Width, Inches.....	¾	1
Each.....	\$0.50	\$0.55



Fig. 811—Spoon and Bead

Width, Inches.....	¾	1
Each.....	\$0.50	\$0.55



Fig. 812—Double Square

Width, Inches....	½	¾	¾	1
Each.....	\$0.50	\$0.55	\$0.60	\$0.65



Fig. 813—Oval Dog Tail

Width, Inches.....	¾	1	1¼
Each.....	\$0.50	\$0.60	\$0.70



Fig. 814—Column Slick

Width, Inches.....	¾	¾	¾
Each.....	\$0.50	\$0.60	\$0.70



Fig. 815—Flute

Width, Inches.....	¾	¾	¾
Each.....	\$0.50	\$0.60	\$0.70



Fig. 816—Bead

Width, Inches	¾	½	¾	¾	12
Each.....	\$0.45	\$0.50	\$0.55	\$0.60	\$0.70

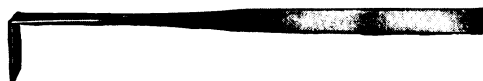


Fig. 817—Lifter

Width, Ins.	Length, Inches					
	10	12	14	16	18	20
¾x	\$0.40	\$0.45	\$0.50	\$0.55	.....	.....
¼x	.45	.50	.55	.60	.65	.....
¾x	.50	.55	.60	.65	.70	\$0.75
½x	.55	.60	.65	.70	.75	.80
¾x	.....	.65	.70	.75	.80	.85
¾x	.....	.70	.75	.80	.85	.90
¾x	.....	.....	.80	.85	.90	.95
1x	.....	.....	.85	.90	.95	1.00

The above sizes are the standard sizes which we carry in stock. We make them to order any length or size desired.

Prices on application

MOLDERS' TOOLS



Fig. 818—Hub Tool

Width, Inches.....	$\frac{3}{4}$	1
Each .....	\$0.80	\$0.95



Fig. 819—Fluted Hub Lifter

Size.....	$\frac{3}{4}$ x8	$\frac{3}{4}$ x10	$\frac{3}{4}$ x12	$\frac{3}{4}$ x14
Each.....	\$0.65	\$0.75	\$0.80	\$0.85



Fig. 820—Flange and Bead

Width, Inches....	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Each.....	\$0.80	\$0.90	\$1.00	\$1.20



Fig. 821—Flange Lifter

Width, Ins., $\frac{1}{2}$ x14	$\frac{1}{2}$ x16	$\frac{5}{8}$ x14	$\frac{5}{8}$ x16	$\frac{3}{4}$ x14
Each.....	\$1.05	\$1.10	\$1.10	\$1.15
Width, Ins., $\frac{3}{4}$ x16	$\frac{3}{4}$ x18	1x16	1x18	1x20
Each.....	\$1.20	\$1.25	\$1.30	\$1.35



Fig. 822—Hub Lifter

$\frac{1}{2}$ x12	$\frac{1}{2}$ x14	$\frac{1}{2}$ x16	$\frac{3}{4}$ x14	$\frac{3}{4}$ x16	$\frac{3}{4}$ x18
\$0.65	\$0.70	\$0.75	\$0.80	\$0.85	\$0.90
	1x16	1x18	1x20		
	\$0.95	\$1.00	\$1.05		



Fig. 823—Box Lifter

Size, $\frac{5}{8}$ x14	$\frac{5}{8}$ x16	$\frac{5}{8}$ x18	$\frac{3}{4}$ x16	$\frac{3}{4}$ x18	$\frac{3}{4}$ x20
Each, \$1.10	\$1.15	\$1.20	\$1.20	\$1.25	\$1.30



Fig. 824—Flat Flange

Width, Inches....	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Each.....	\$0.90	\$1.00	\$1.10	\$1.30



Fig. 825—Flat and Circular Flange

Width, Inches.	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Each.....	\$0.90	\$1.00	\$1.10	\$1.30



Fig. 826—Circular Flange

Width, Inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Each.....	\$0.90	\$1.00	\$1.10	\$1.30



Fig. 827—Pipe Slick

Width, Ins.	Each
1	\$0.50
1 $\frac{1}{2}$	.50
2	.050



Fig. 828—Egg Slick  
Each .....\$0.50



Fig. 829—Button Slick

Width, Ins.	Each
1 $\frac{1}{2}$	\$0.50
2	.50
2 $\frac{1}{2}$	.50



Fig. 830—Square Corner

Width, Ins.	Each
1 $\frac{1}{2}$	\$0.55
2	.60
2 $\frac{1}{2}$	.65



Fig. 831—Inside Square Corner

Width, Ins.	Each
2	\$0.75
2 $\frac{1}{2}$	.80

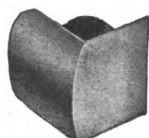


Fig. 832—Half Round Corner

Width, Ins.	Each
1	\$0.50
1 $\frac{1}{4}$	.55
1 $\frac{1}{2}$	.60
2	.65

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